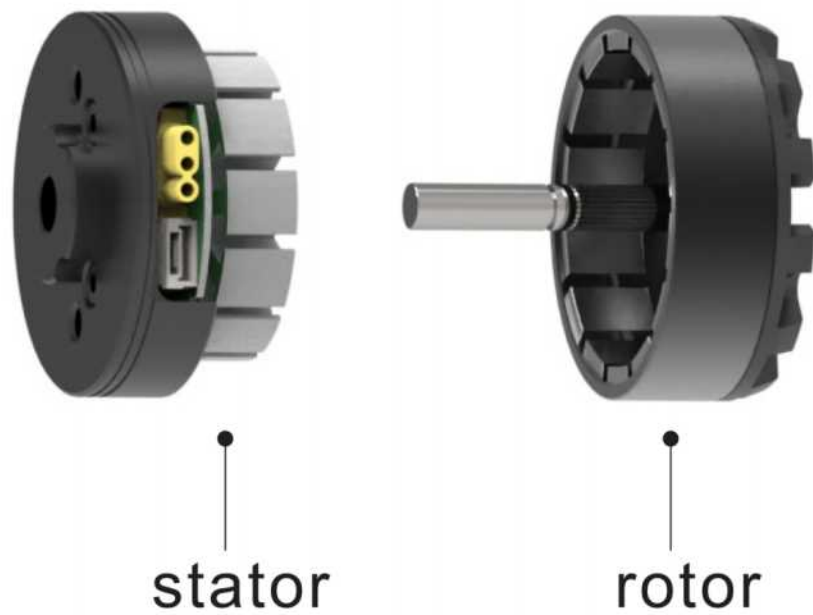


CATALOG

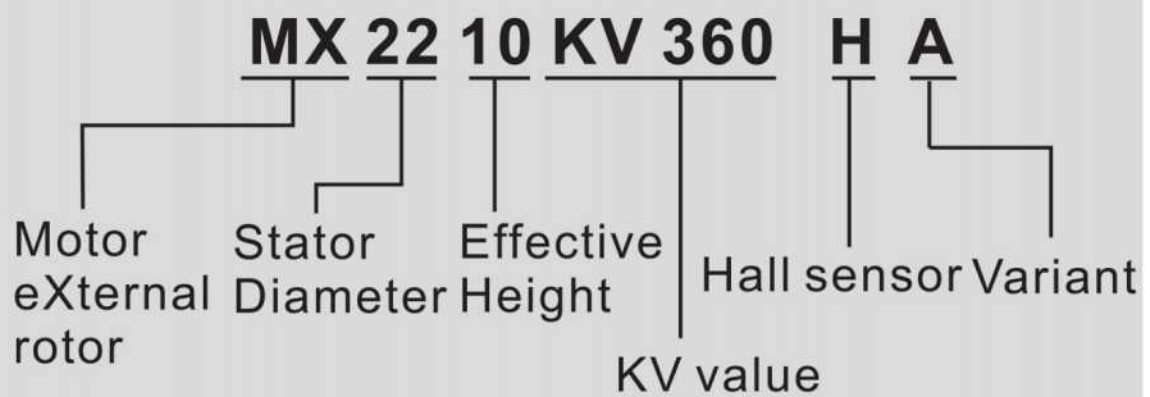
OUTRUNNER MOTOR 外转子无刷电机 ***GEAR MOTOR*** 减速电机

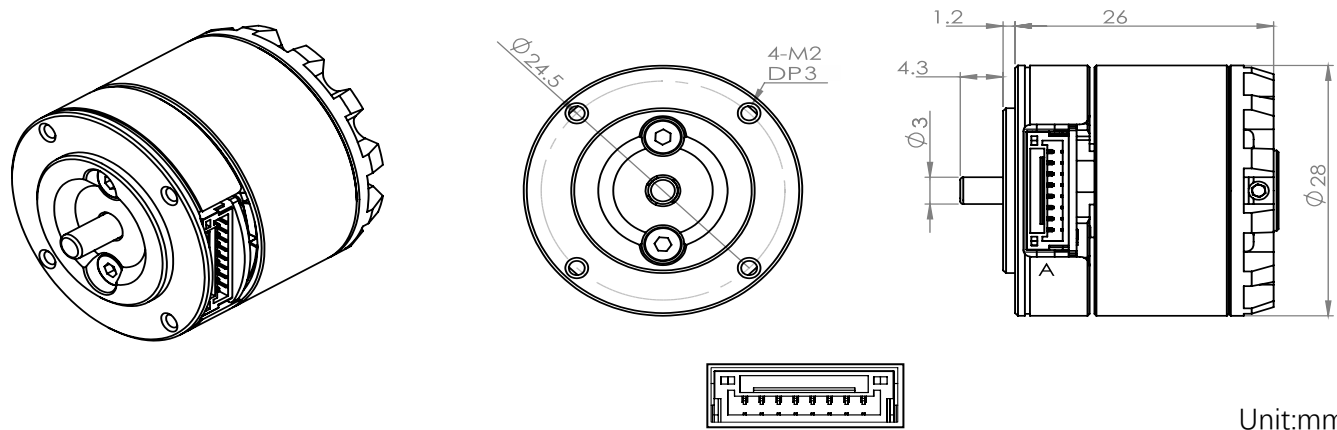


OUTRUNNER BLDC MOTOR



Naming rule:





Connector:	GH1.25-F-8P	Pin definition(left to right):
Cable :	GH8P-M-28AWG-15cm	1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

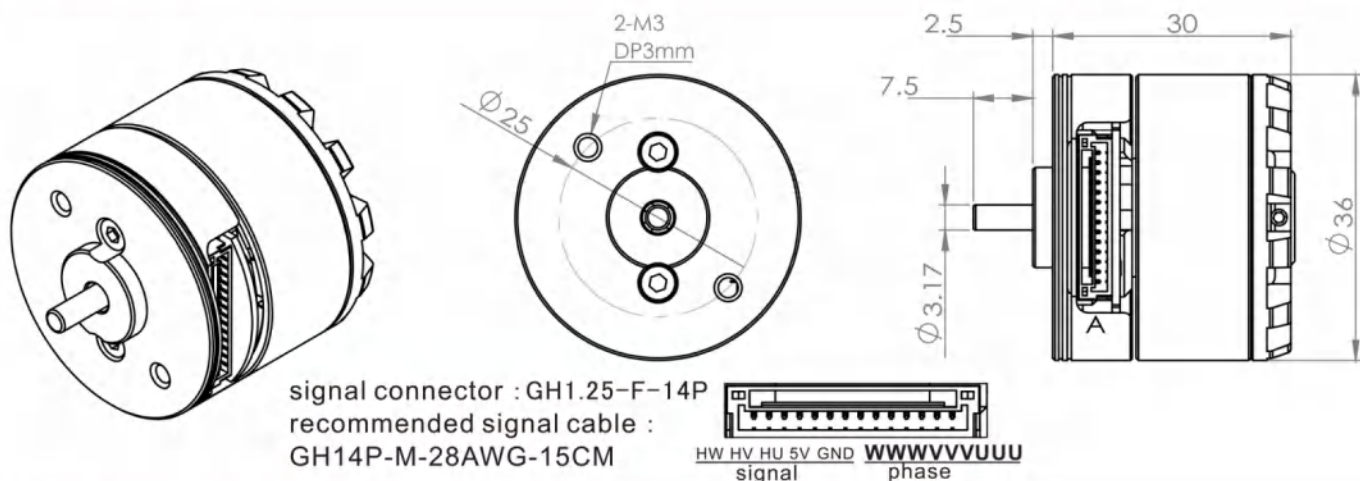
General Characteris

Motor Configuration		Unit			Unit
Mechanical structure	outrunner		Ingress protection	IP 54	
Number of pole pairs	7		Speed constant	KV	360
Number of phases	3		Torque constant	mNm/A	23
Winding connection	star		Single phase resistance	mOhm	750
Total weight	g	52	DQ inductance	uH	100
Rotor inertia	uNm*s ²	0.75	Friction	uN*m*s	0.5

Thermal Data		Sensoric	
Thermal resistance houing -ambient	6.1K/W	Sensor type	bipolar self-locking hall
Thermal resistance winding-housing	9.4K/W	Number of halls	3
Ambient temperature	-40 °C - 100 °C	Supply voltage	5V
Maximal winding temperature	120 °C	Electrical angle	120 degrees

Nominal & Stall		Unit	Hall sequence regards to back EMF	
Nominal voltage	V	12 24	tested in CCW direction	
No load speed	rpm	4300 8600		
No load current	mA	150 260	Pull-up resistance	
Nominal speed	rpm	3300 7200	yes	
Nominal torque	mNm	33 45		
Nominal current	A	1.3 1.7		
Maximal power	W	15 45		
Maximal efficiency		83% 84%		
Stall torque	mNm	105 210		
Stall current	A	4.5 8		

ATTENTION: Stall operation is not recommended, please do necessary protection to avoid irreparable damage.

**General Characteristics:****Motor Configuration**

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 150
Number of phases	3	Torque constant	mN/A 52
Winding connection	star	Single phase resist.	Ohm 2
Total weight	gram 90	DQ inductance	uH 400
Rotor inertia	uNm*s ² 1.6	Friction	uN*m*s 0.5

Thermal Data

Thermal resistance housing-ambient	5.4K/W
Thermal resistance winding-housing	7.9K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Sensoric

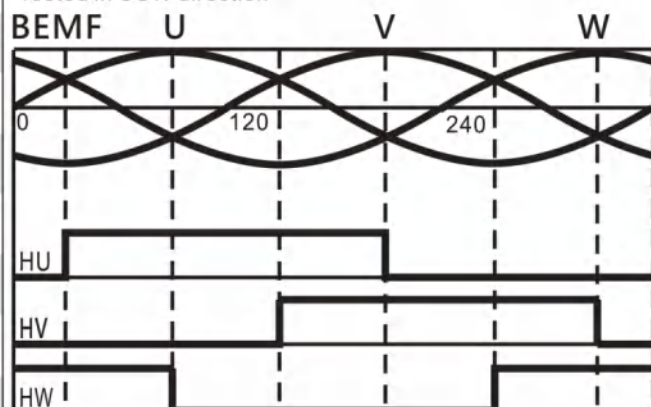
Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Nominal & Stall

Nominal voltage	V	12	24
No load speed	rpm	1800	3600
Noload current	mA	110	120
Nominal speed	rpm	1150	2400
Nominal torque	mNm	47	77
Nominal current	A	0.9	1.4
Max. power	W	6	22
Max. efficiency		63%	70%
Stall torque	mNm	120	180
Stall current	A	2.2	3.5

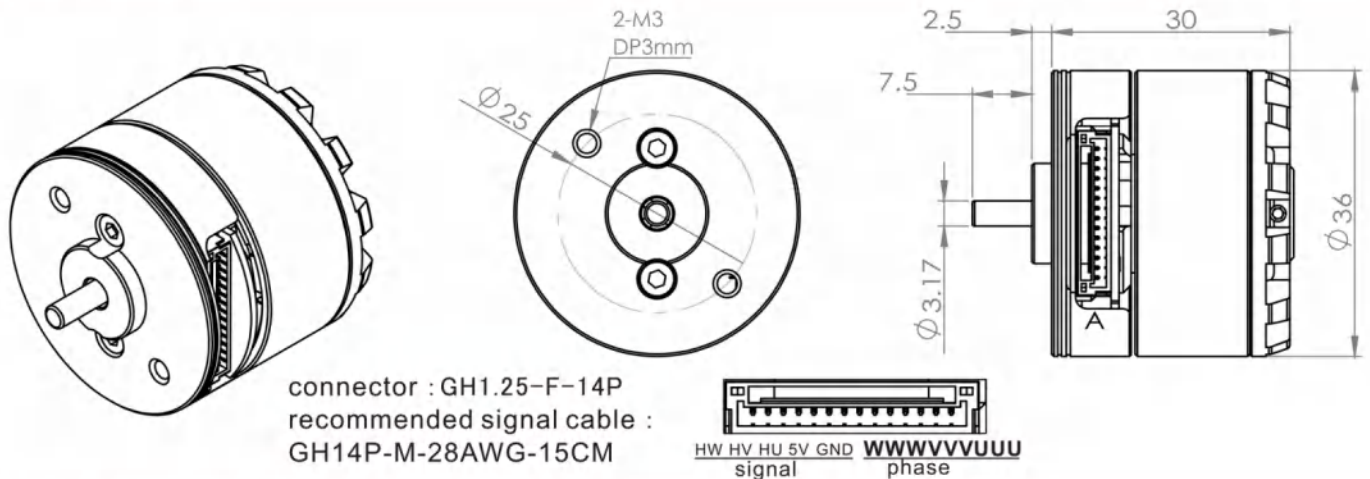
Hall sequence regards to back EMF

Tested in CCW direction



Pull-up resistance	yes
--------------------	-----

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

**General Characteristics:****Motor Configuration**

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 200
Number of phases	3	Torque constant	mN/A 48
Winding connection	star	Single phase resist.	Ohm 1.3
Total weight	gram 90	DQ inductance	uH 260
Rotor inertia	uNm*s ² 1.6	Friction	uN*m*s 0.5

Thermal Data

Thermal resistance housing-ambient	5.4K/W
Thermal resistance winding-housing	7.9K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Nominal & Stall

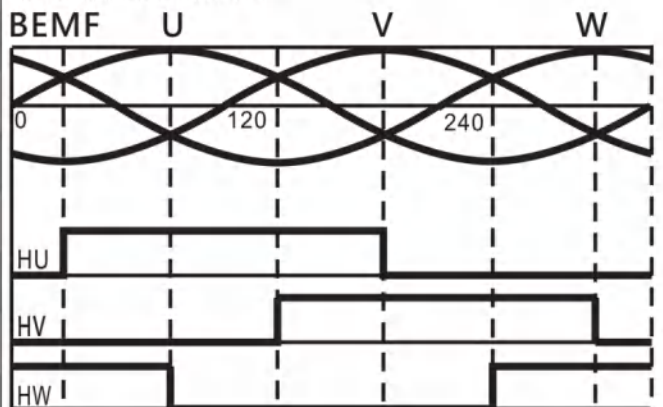
Nominal voltage	V	12	24
No load speed	rpm	2400	4800
Noload current	mA	150	180
Nominal speed	rpm	1800	3400
Nominal torque	mNm	47	92
Nominal current	A	1	1.9
Max. power	W	12	38
Max. efficiency		83%	86%
Stall torque	mNm	160	230
Stall current	A	3.5	5.5

Sensoric

Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

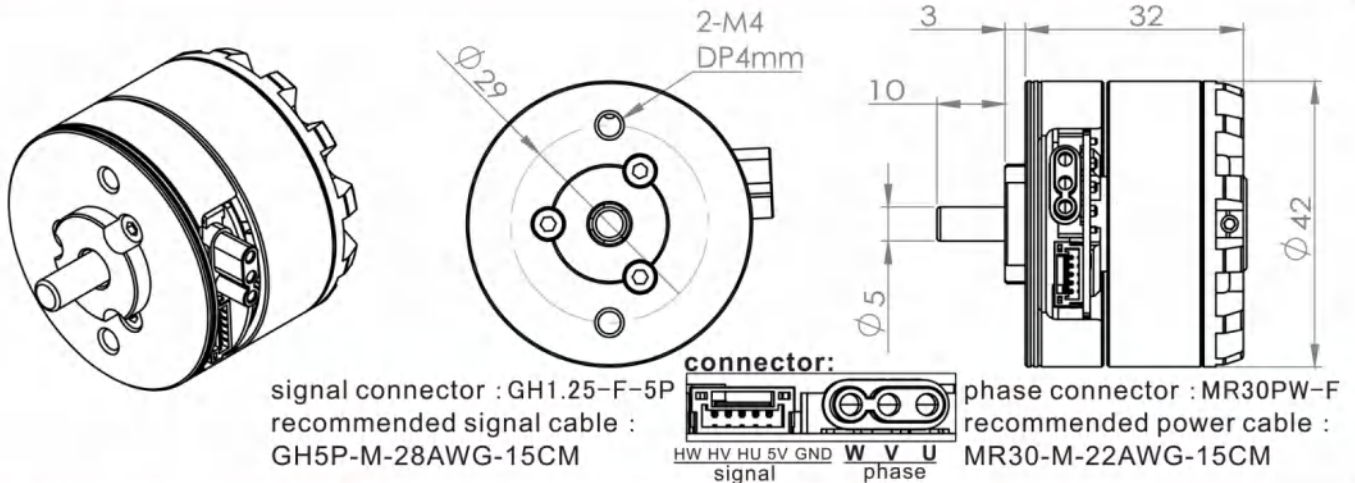
Hall sequence regards to back EMF

Tested in CCW direction



Pull-up resistance	yes
--------------------	-----

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

**General Characteristics:****Motor Configuration**

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 125
Number of phases	3	Torque constant	mN/A 45
Winding connection	star	Single phase resist.	Ohm 1.75
Total weight	gram 130	DQ inductance	uH 450
Rotor inertia	uNm*s ² 2.7	Friction	uN*m*s 0.5

Thermal Data

Thermal resistance housing-ambient	4.8K/W
Thermal resistance winding-housing	7.1K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Sensoric

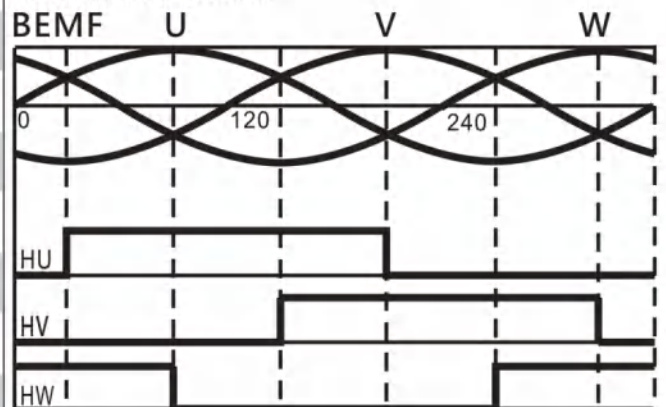
Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Nominal & Stall

Nominal voltage	V	12	24	48
No load speed	rpm	1500	3000	6000
Noload current	mA	90	150	300
Nominal speed	rpm	1100	2100	4200
Nominal torque	mNm	54	117	200
Nominal current	A	0.8	1.6	3
Max. power	W	8	30	110
Max. efficiency		80%	82%	85%
Stall torque	mNm	300	320	500
Stall current	A	3.5	4.5	8.4

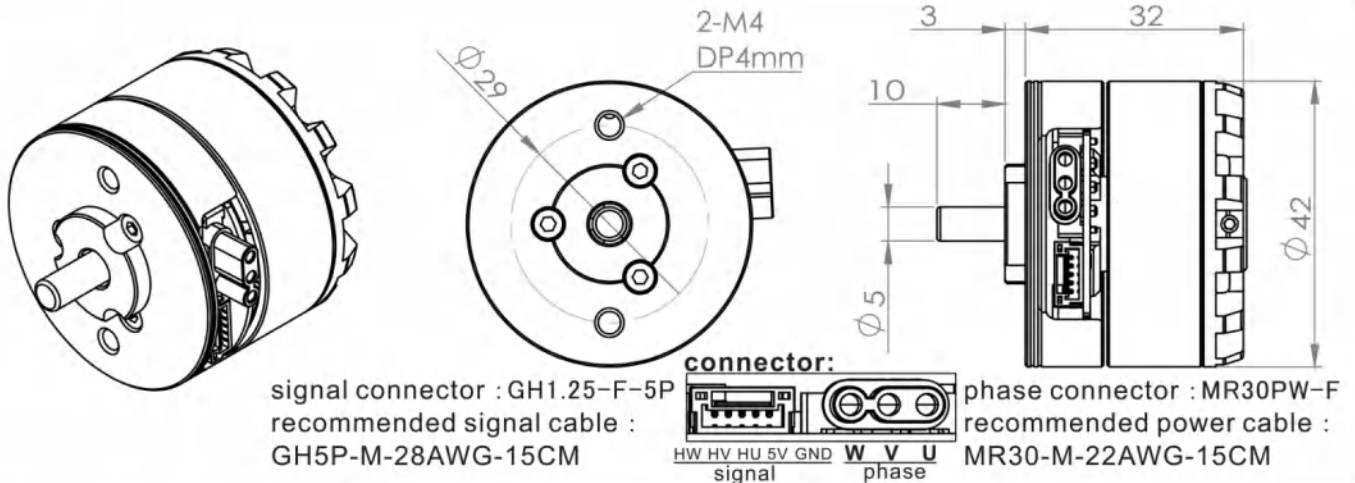
Hall sequence regards to back EMF

Tested in CCW direction



Pull-up resistance yes

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

**General Characteristics:****Motor Configuration**

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 200
Number of phases	3	Torque constant	mN/A 45
Winding connection	star	Single phase resist.	mOhm 600
Total weight	gram 130	DQ inductance	uH 140
Rotor inertia	uNm*s ² 2.7	Friction	uN*m*s 0.5

Thermal Data

Thermal resistance housing-ambient	4.8K/W
Thermal resistance winding-housing	7.1K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Sensoric

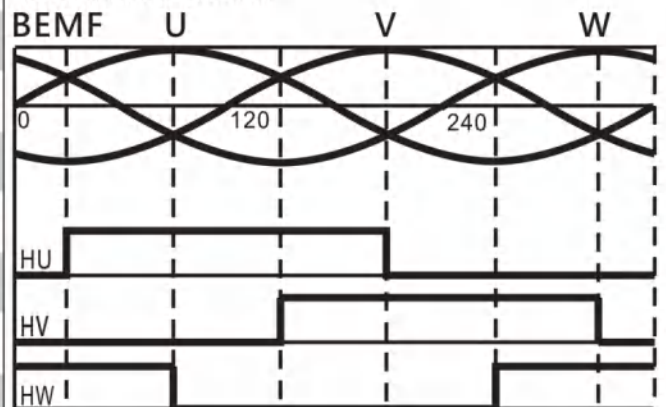
Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Nominal & Stall

Nominal voltage	V	12	24	48
No load speed	rpm	2400	4800	9600
Noload current	mA	150	270	320
Nominal speed	rpm	1500	3400	7800
Nominal torque	mNm	100	180	350
Nominal current	A	2.2	3.7	7.2
Max. power	W	20	70	240
Max. efficiency		80%	86%	86%
Stall torque	mNm	300	400	740
Stall current	A	3.5	5.5	9.8

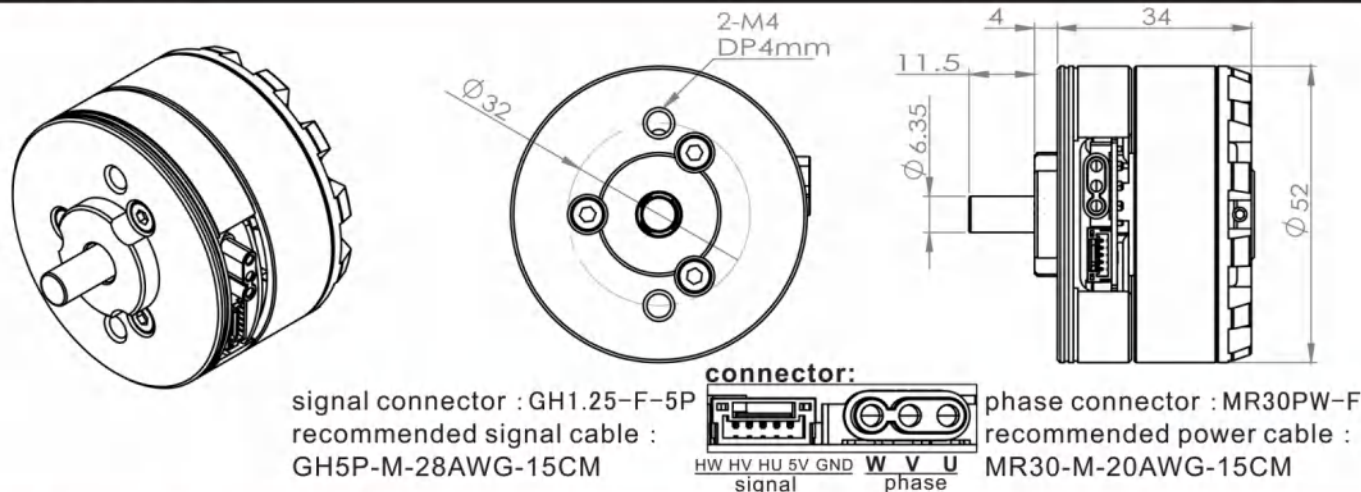
Hall sequence regards to back EMF

Tested in CCW direction



Pull-up resistance	yes
--------------------	-----

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

**General Characteristics:****Motor Configuration**

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 150
Number of phases	3	Torque constant	mN/A 65
Winding connection	star	Single phase resist.	mOhm 410
Total weight	gram 220	DQ inductance	uH 200
Rotor inertia	uNm*s ² 6.5	Friction	uN*m*s 0.5

Thermal Data

Thermal resistance housing-ambient	4.5K/W
Thermal resistance winding-housing	6.8K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Sensoric

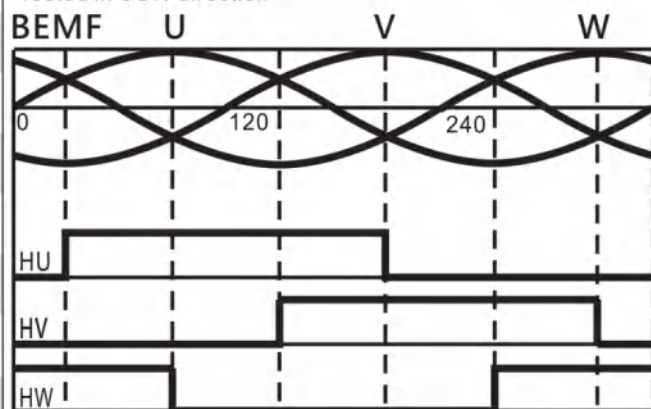
Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Nominal & Stall

Nominal voltage	V	24	48
No load speed	rpm	3600	7200
Noload current	mA	225	300
Nominal speed	rpm	2550	3100
Nominal torque	mNm	280	560
Nominal current	A	4.2	8.4
Max. power	W	74	256
Max. efficiency		85%	86%
Stall torque	mNm	670	1300
Stall current	A	11.5	25

Hall sequence regards to back EMF

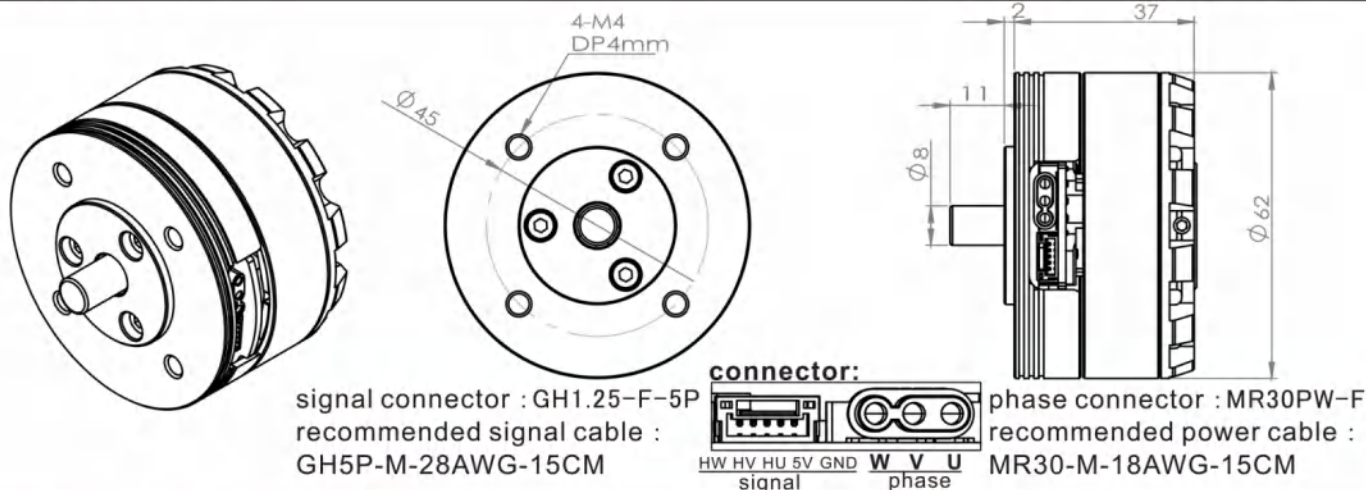
Tested in CCW direction



Pull-up resistance	yes
--------------------	-----

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

MX5310KV100HA



General Characteristics:

Motor Configuration

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 100
Number of phases	3	Torque constant	mN/A 44
Winding connection	star	Single phase resist.	mOhm 400
Total weight	gram 300	DQ inductance	uH 200
Rotor inertia	uNm*s ² 8.2	Friction	uN*m*s 0.6

Thermal Data

Thermal resistance housing-ambient	4.9K/W
Thermal resistance winding-housing	3.8K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Sensoric

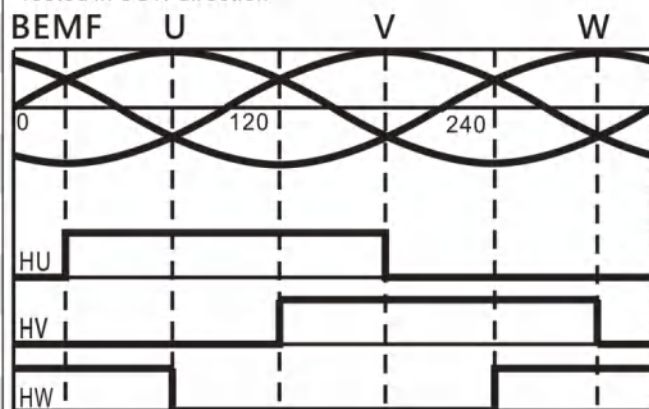
Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Nominal & Stall

Nominal voltage	V	24	48
No load speed	rpm	2450	4900
Noload current	mA	230	500
Nominal speed	rpm	3600	7200
Nominal torque	mNm	500	1000
Nominal current	A	1.2	2.4
Max. power	W	100	380
Max. efficiency		82%	83%
Stall torque	N	1.45	2.8
Stall current	A	14	30

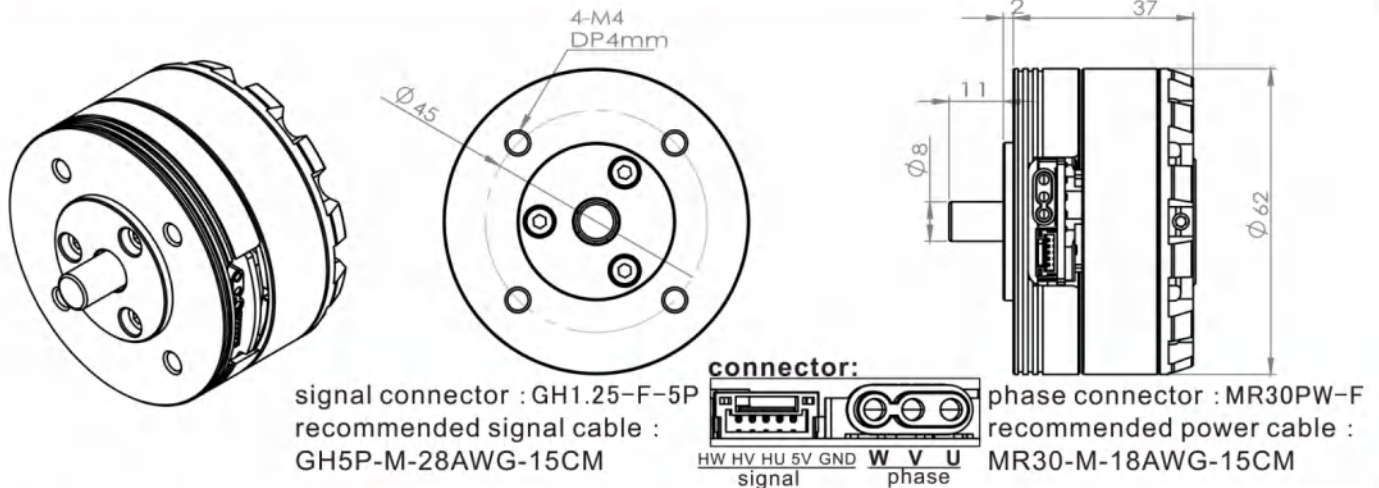
Hall sequence regards to back EMF

Tested in CCW direction



Pull-up resistance	yes
--------------------	-----

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.



General Characteristics:

Motor Configuration

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 200
Number of phases	3	Torque constant	mN/A 44
Winding connection	star	Single phase resist.	mOhm 200
Total weight	gram 300	DQ inductance	uH 1000
Rotor inertia	uNm*s ² 8.2	Friction	uN*m*s 0.6

Thermal Data

Thermal resistance housing-ambient	4.9K/W
Thermal resistance winding-housing	3.8K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Sensoric

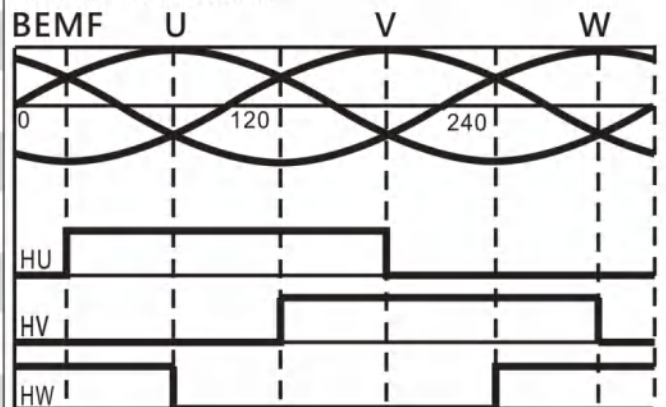
Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Nominal & Stall

Nominal voltage	V	24	48
No load speed	rpm	4800	9600
Noload current	mA	550	700
Nominal speed	rpm	3600	7200
Nominal torque	mNm	500	1000
Nominal current	A	1.2	2.4
Max. power	W	400	1500
Max. efficiency		82%	85%
Stall torque	N	1.2	2.3
Stall current	A	22	45

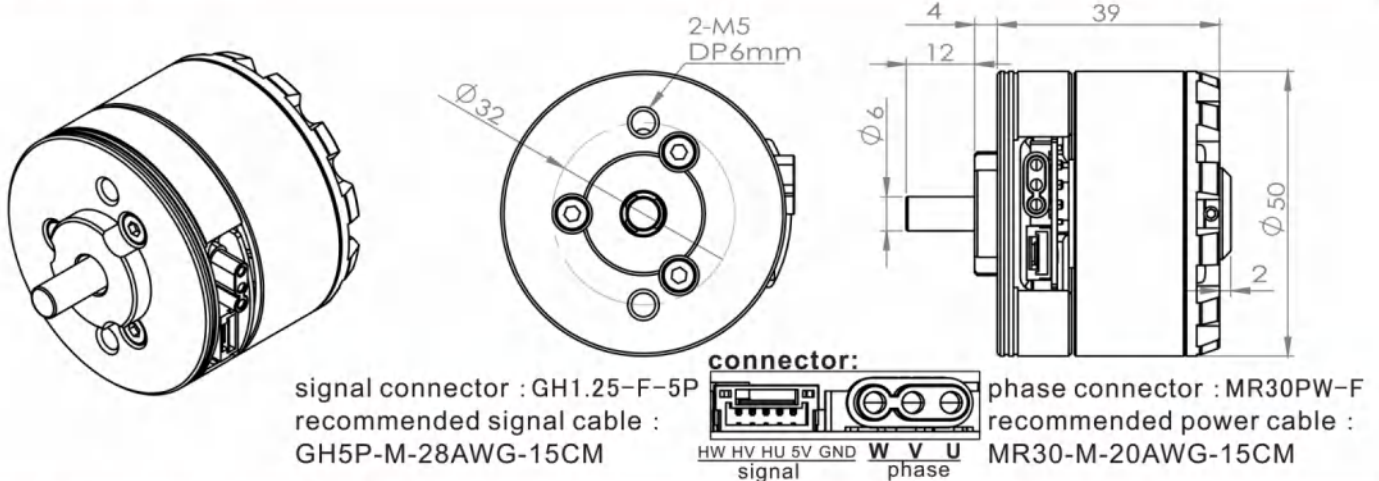
Hall sequence regards to back EMF

Tested in CCW direction



Pull-up resistance	yes
--------------------	-----

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

**General Characteristics:****Motor Configuration**

Mechanical structure	outrunner	Ingress protection	IP 44
Number of pole pairs	7	Speed constant	KV 90
Number of phases	3	Torque constant	mN/A 100
Winding connection	star	Single phase resist.	mOhm
Total weight	gram 250	DQ inductance	uH 200
Rotor inertia	uNm*s ² 7.8	Friction	uN*m*s 0.6

Thermal Data

Thermal resistance housing-ambient	4.3K/W
Thermal resistance winding-housing	6.2K/W
Ambient temperature	-40~100 °C
Max. winding temperature	120 °C

Sensoric

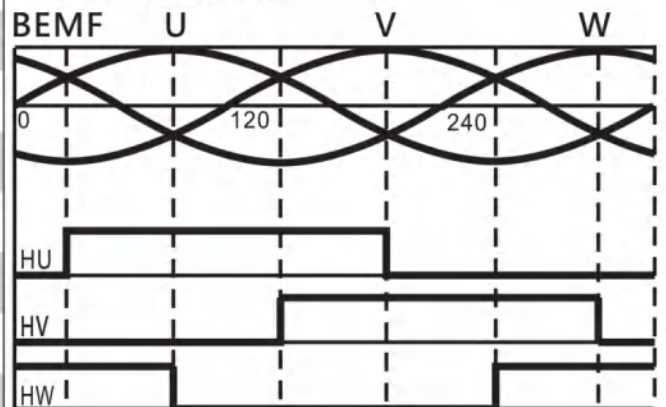
Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Nominal & Stall

Nominal voltage	V 24
No load speed	rpm 2160
Noload current	mA 250
Nominal speed	rpm 1700
Nominal torque	mNm 210
Nominal current	A 2.2
Max. power	W 57
Max. efficiency	73%
Stall torque	mNm 800
Stall current	A 7

Hall sequence regards to back EMF

Tested in CCW direction



Pull-up resistance	yes
--------------------	-----

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

OUTRUNNER BLDC GEARMOTOR



outrunner motor

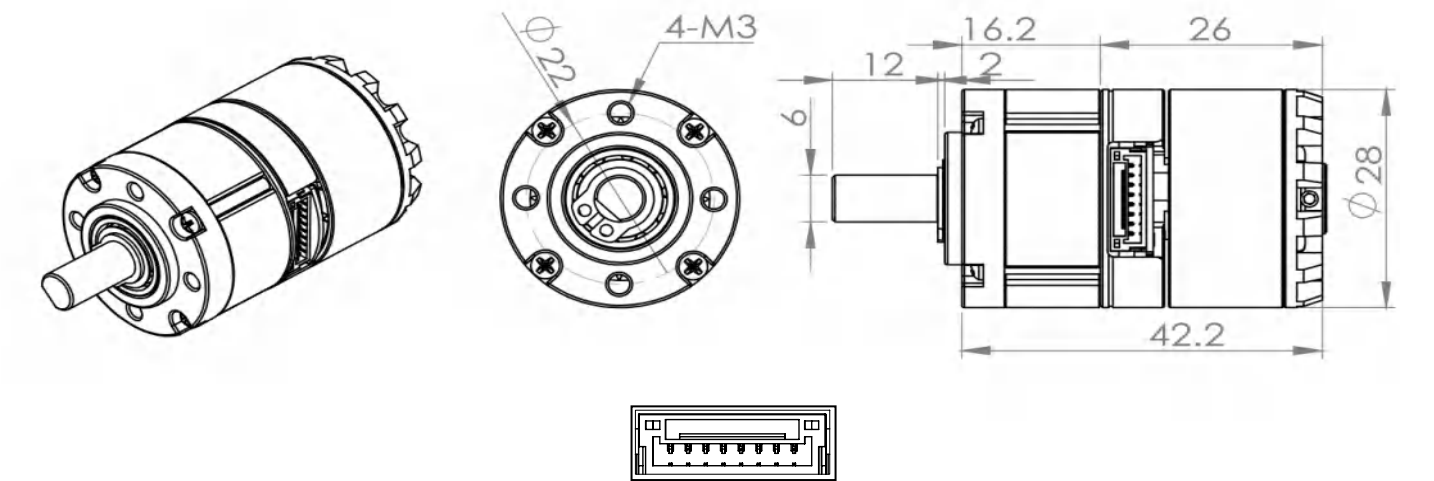


planetary gearbox

Naming rule:

MX2210KV360HA -

		GP	28	L1	A	3.3
Motor	Gearbox		Diameter	Gearbox	Variant	Gear ratio
Model	Planetary			Levels		

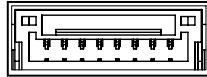
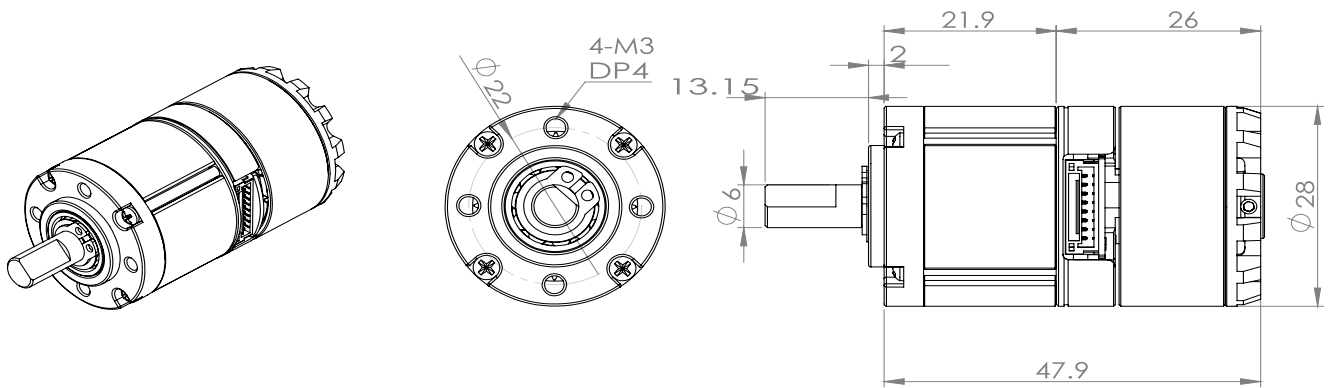


Connector:	GH1.25-F-8P	Pin definition(left to right):
Cable :	GH8P-M-28AWG-15cm	1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

General Characteristics :

Basic Dimensions			Motor Features		
Unit			Unit		
Diametier		28	Motor typeBLDC outrunner		
Body length	mm	42.2	Motor modelMX2210KV360HA		
Output shaft diameter	mm	6	Pole pairs7		
Output shaft lenghth	mm	12	Number of phases3		
			*For more motor features please refer datasheet "MX2210KV360HA"		
Gearbox Features			Nominal & Stall		
Unit			Unit		
Gearbox modelGP28L1A			Gearbox ratio	K	3.3
Gearbox typePlanetary			Nominal voltage	V	12
Gearbox ratio			K	3.3	24
Gearbox levels			Noload speed	rpm	1303
Gearbox diameter			mm	28	2606
Gearbox length			mm	16.2	1000
Gearbox efficiency				90%	2182
Operating torque			kg*cm	5	109
Brakeing torque			kg*cm	15	149
			Nominal current		
			A		
			1.4		
			1.9		
			Maximal power		
			W		
			15		
			45		
			Maximal efficiency		
			75%		
			76%		
			Stall torque		
			mNm		
			347		
			693		
			Stall current		
			A		
			4.5		
			8		

*Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Connector: GH1.25-F-8P
Cable : GH8P-M-28AWG-15cm

Pin definition(left to right):

1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

General Characteristics :

Basic Dimensions	Unit	
Diameter	mm	28
Body length	mm	47.9
Output shaft diameter	mm	6
Output shaft length	mm	13.15

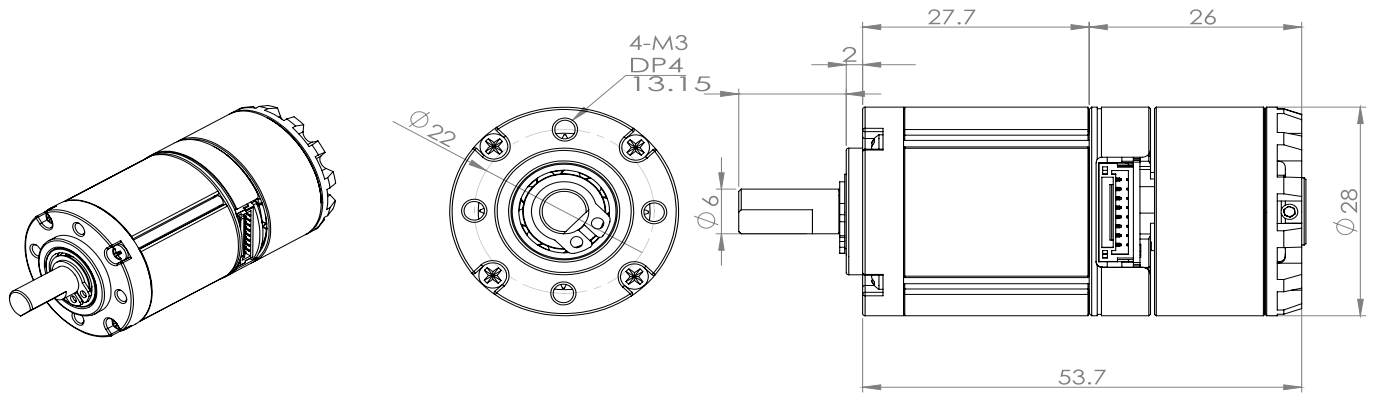
Motor Features	Unit	
Motor type		BLDC outrunner
Motor model		MX2210KV360HA
Pole pairs		7
Number of phases		3
*For more motor features please refer datasheet "MX2210KV360HA"		

Gearbox Features	Unit	
Gearbox model		GP28L2A
Gearbox type		Planetary
Gearbox ratio	K	11.2/15.5/21.5*
Gearbox levels		2
Gearbox diameter	mm	28
Gearbox length	mm	21.9
Gearbox efficiency		90%
Operating torque	kg*cm	10
Braking torque	kg*cm	30

Nominal & Stall	Unit				*		*
Gearbox ratio	K	11.2	15.5	21.5	11.2	15.5	21.5
Nominal voltage	V	12	12	12	12	12	12
Noload speed	rpm	384	277	200	768	555	400
Nominal speed	rpm	295	213	153	643	465	335
Nominal torque	mNm	370	512	710	504	698	968
Nominal current	A	1.4	1.4	1.4	1.9	1.9	1.9
Maximal power	W	14.3	14.3	14.3	42.8	42.8	42.8
Maximal efficiency		75%	75%	75%	76%	76%	76%
Stall torque	Nm	1.2	1.6	2.3	2.4	3.3	4.5
Stall current	A	4.5	4.5	4.5	8	8	8

*Ratio 21.5 is in prototype phase.

*Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Connector: GH1.25-F-8P
Cable : GH8P-M-28AWG-15cm

Pin definition(left to right):

1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

General Characteristics :

Basic Dimensions	Unit	
Diametier	mm	28
Body length	mm	53.7
Output shaft diameter	mm	6
Output shaft length	mm	13.15

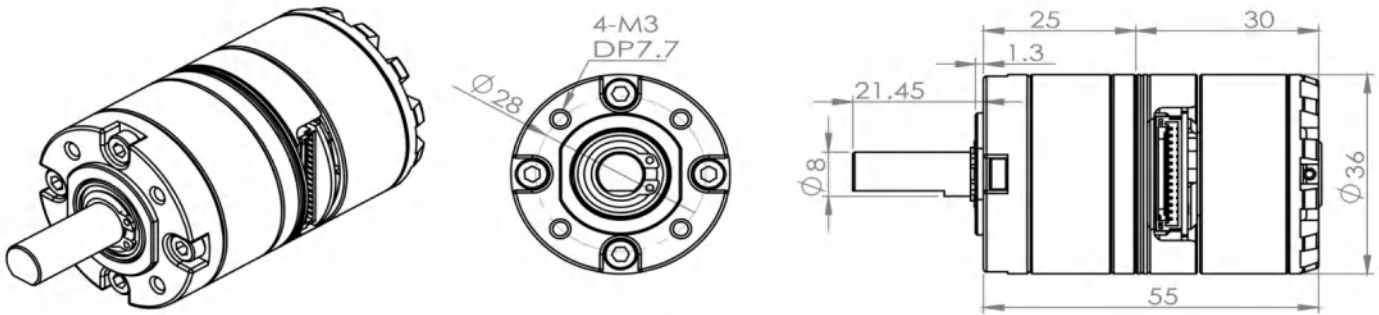
Gearbox Features	Unit	
Gearbox model		GP28L3A
Gearbox type		Planetary
Gearbox ratio	K	37.7/52.1/72*
Gearbox levels		2
Gearbox diameter	mm	28
Gearbox length	mm	27.7
Gearbox efficiency		82%
Operating torque	kg*cm	25
Brakeing torque	kg*cm	75

*Ratio 72 is in prototype phase.

*Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!

Motor Features	Unit	
Motor type		BLDC outrunner
Motor model		MX2210KV360HA
Pole pairs		7
Number of phases		3
*For more motor features please refer datasheet "MX2210KV360HA".		

Nominal & Stall	Unit				*		*
Gearbox ratio	K	37.7	52.1	72	37.7	52.1	72
Nominal voltage	V	12	12	12	24	24	24
Noload speed	rpm	114	83	60	228	24	119
Nominal speed	rpm	95	69	50	191	138	100
Nominal torque	mNm	829	1146	1584	1697	2345	3240
Nominal current	A	1.0	1.0	1.0	1.9	1.9	1.9
Maximal power	W	13.5	13.5	13.5	49.5	49.5	49.5
Maximal efficiency		68%	68%	68%	69%	69%	69%
Stall torque	Nm	4.0	5.5	7.6	7.9	10.9	15.1
Stall current	A	1.5	1.5	1.5	3	3	3



Unit:mm

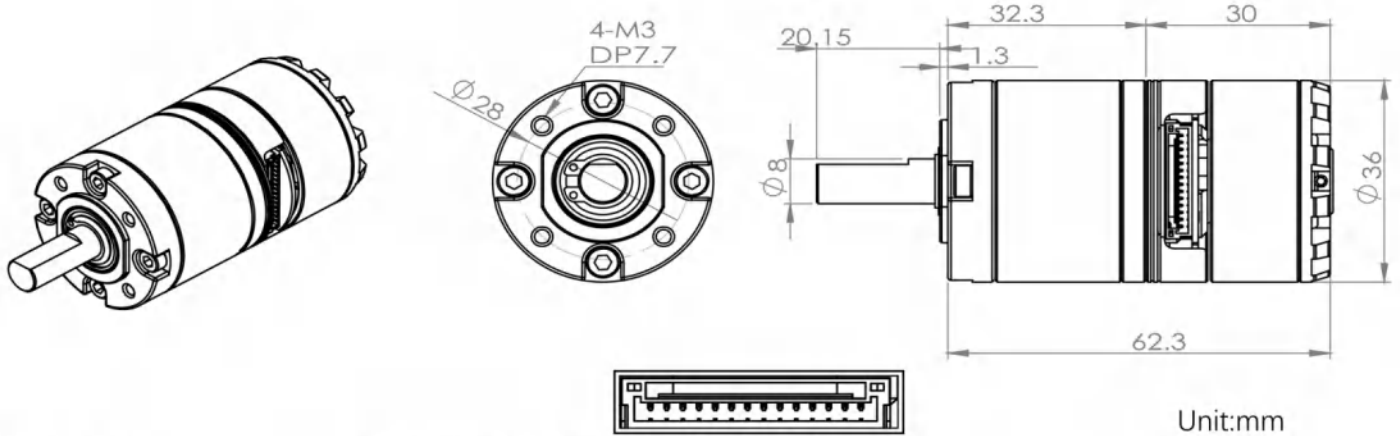
Connector : GH1.25-F-14P
Cable : GH14P-M-28AWG-15cm

Pin definition(left to right):
HW HV HU 5V GND W W W V V V U U U

General Characteristics

Basic Dimensions			Unit	Motor Features		Unit
Diametier	mm	36		Motor type	BLDC outrunner	
Body length	mm	55		Motor model	MX2810KV200HA	
Output shaft diameter	mm	8		Pole pairs	7	
Output shaft lenghth	mm	21.45		Number of phases	3	
				*For more motor features please refer datasheet "MX2810KV200HA".		

Gearbox Features		Unit	Nominal & Stall		Unit
			Gear ratio	K	3.7 5.2 3.7 5.2
Gearbox model	GP36L1A		Nominal voltage	V	12 12 24 24
Gearbox type	Planetary		Noload speed	rpm	649 462 1297 923
Gear ratio	K	3.7/5.2	Nominal speed	rpm	486 346 919 654
Gearbox levels	1		Nominal torque	mNm	174 244 340 478
Gearbox diameter	mm	36	Nominal current	A	1 1 1.9 1.9
Gearbox length	mm	25	Maximal power	W	12 12 38 38
Gearbox efficiency	90%		Maximal efficiency		75% 75% 77% 77%
Operating torque	kg*cm	10	Stall torque*	mNm	592 832 851 1196
Brakeing torque	kg*cm	30	Stall current	A	3.5 3.5 5.5 5.5
			Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!		



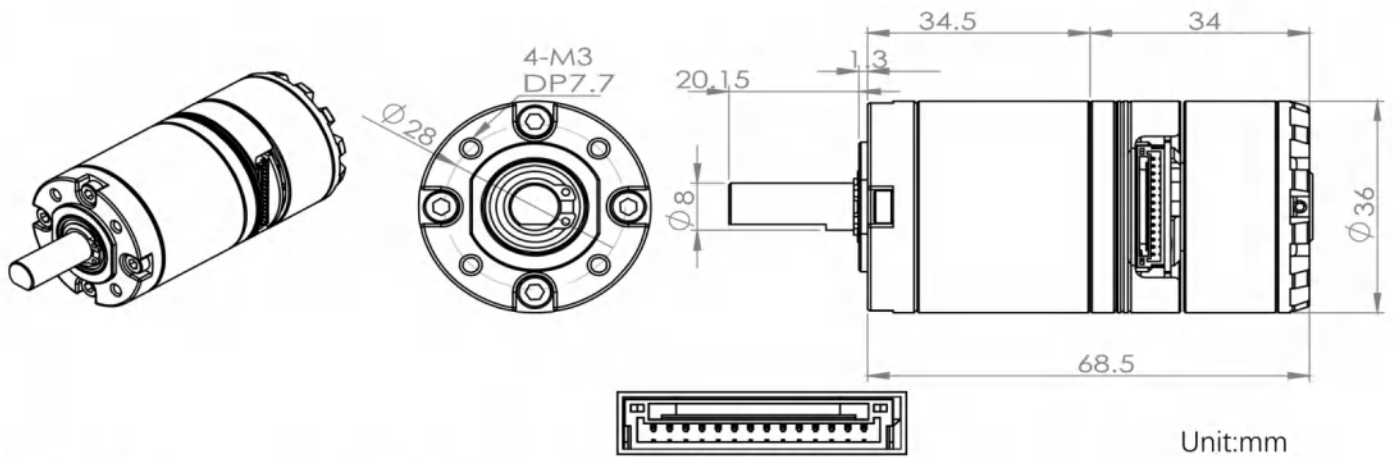
Connector : GH1.25-F-14P
Cable : GH14P-M-28AWG-15cm

Pin definition(left to right):
HW HV HU 5V GND W W W V V V U U U

General Characteristics

Basic Dimensions	Unit		Motor Features	Unit	
Diameter	mm	36	Motor type		BLDC outrunner
Body length	mm	62.3	Motor model		MX2810KV200HA
Output shaft diameter	mm	6	Pole pairs		7
Output shaft length	mm	13.15	Number of phases		3
			*For more motor features please refer datasheet "MX2810KV200HA".		

Gearbox Features	Unit		Nominal & Stall	Unit	
			Gear ratio	K	13.7 19.2 26.9 13.7 19.2 26.9
Gearbox model		GP28L3A	Nominal voltage	V	12 12 12 24 24 24
Gearbox type		Planetary	Noload speed	rpm	175 125 89 350 250 178
Gear ratio	K	37.7/52.1/72	Nominal speed	rpm	131 94 67 248 177 126
Gearbox levels		2	Nominal torque	mNm	644 902 1264 1260 1766 2475
Gearbox diameter	mm	36	Nominal current	A	1 1 1 1.9 1.9 1.9
Gearbox length	mm	27.7	Maximal power	W	10.8 10.8 10.8 34.2 34.2 34.2
Gearbox efficiency		90%	Maximal efficiency		75% 75% 75% 77% 77% 77%
Operating torque	kg*cm	20	Stall torque*	Nm	2.2 3.1 4.3 3.2 4.4 6.2
Brakeing torque	kg*cm	60	Stall current	A	3.5 3.5 3.5 5.5 5.5 5.5
			Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!		

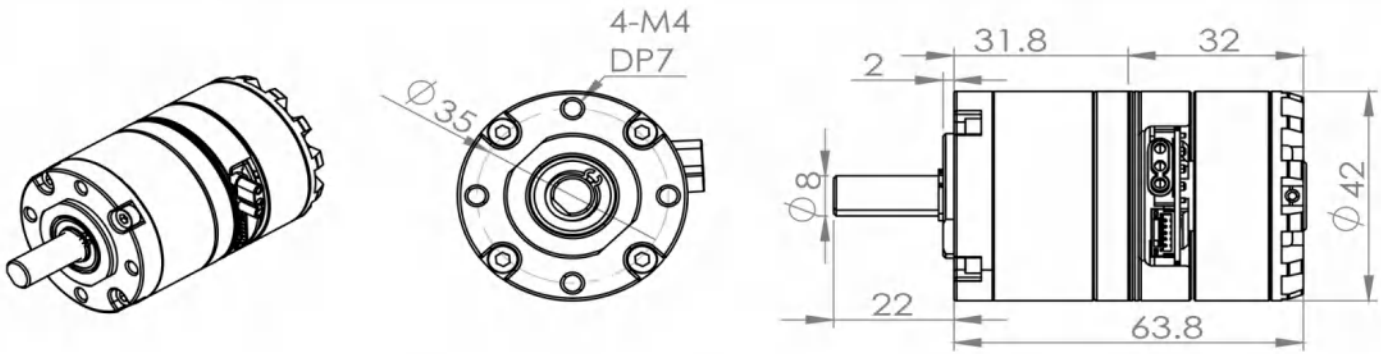


Connector : GH1.25-F-14P
Cable : GH14P-M-28AWG-15cm

Pin definition(left to right):
HW HV HU 5V GND W W W V V V U U U

General Characteristics

Basic Dimensions		Unit	Motor Features		Unit
Diametier	mm	36	Motor type		BLDC outrunner
Body length	mm	68.5	Motor model		MX2810KV200HA
Output shaft diameter	mm	8	Pole pairs		7
Output shaft lenghth	mm	20.15	Number of phases		3
			*For more motor features please refer datasheet "MX2810KV200HA".		
Gearbox Features		Unit	Nominal & Stall		Unit
Gearbox model		GP28L3A	Gear ratio	K	50.9
Gearbox type		Planetary	Nominal voltage	V	12
Gear ratio		K	Noload speed	rpm	47
Gearbox levels		3	Nominal speed	rpm	35
Gearbox diameter		mm	Nominal torque	mNm	2392
Gearbox length		mm	Nominal current	A	1
Gearbox efficiency		90%	Maximal power	W	10.8
Operating torque		kg*cm	Maximal efficiency		75%
Brakeing torque		kg*cm	Stall torque*	Nm	8.1
			Stall current	A	3.5
			Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!		



Unit:mm

Signal connector: GH1.25-F-5P
 Signal cable : GH5P-M-28AWG-15cm
 Phase connector : MR30PW-F
 Phase cable: MR30-M-22AWG-15cm

Pin definition(left to right):
 HW HV HU 5V GND W V U

FEATURES

General Features

Unit

Diameter	mm	42
Body length	mm	63.8
Output shaft diameter	mm	8
Output shaft length	mm	22

Motor Features

Unit

Motor type	BLDC outrunner
Motor model	MX3310KV200HA
Pole pairs	7
Number of phases	3

*For more motor features please refer datasheet "MX3310KV200HA".

Gearbox Features

Unit

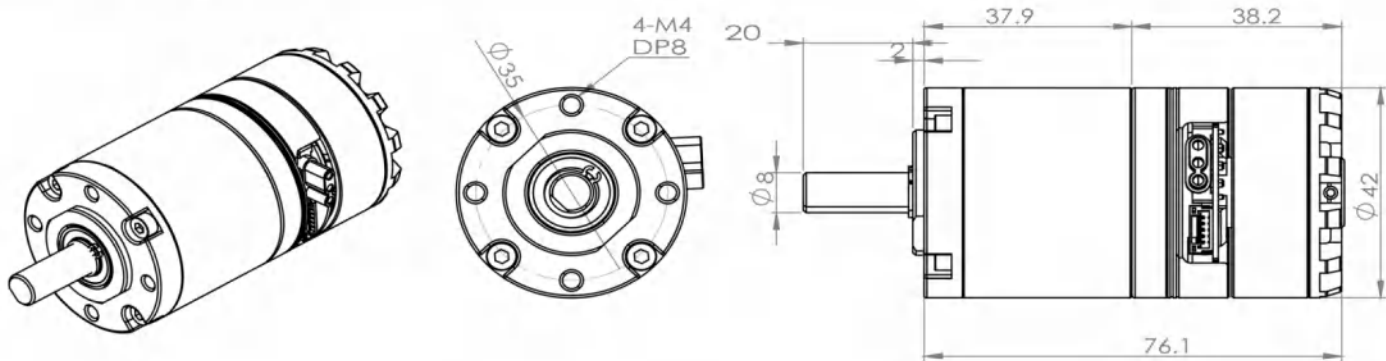
Gearbox model		GP42L1A
Gearbox type		Planetary
Gear ratio	K	3.7
Gearbox levels		1
Gearbox diameter	mm	42
Gearbox length	mm	31.8
Gearbox efficiency		90%
Operating torque	kg*cm	20
Brakeing torque	kg*cm	60

Nominal & Stall

Unit

Gear ratio	K	3.7	3.7	3.7
Nominal voltage	V	12	24	48
Noload speed	rpm	649	1297	2595
Nominal speed	rpm	405	919	2108
Nominal torque	mNm	370	666	1295
Nominal current	A	2.2	3.7	7.2
Maximal power	W	20	70	240
Maximal efficiency		72%	77%	77%
Stall torque*	mNm	1110	1480	2738
Stall current	A	3.5	5.5	9.8

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Unit:mm

Signal connector: GH1.25-F-5P
Signal cable : GH5P-M-28AWG-15cm
Phase connector : MR30PW-F
Phase cable: MR30-M-22AWG-15cm



Pin definition(left to right):
HW HV HU 5V GND W V U

FEATURES

General Features

Unit

Diameter	mm	42
Body length	mm	76.1
Output shaft diameter	mm	8
Output shaft length	mm	20

Motor Features

Unit

Motor type	BLDC outrunner
Motor model	MX3310KV200HA
Pole pairs	7
Number of phases	3

*For more motor features please refer datasheet "MX3310KV200HA".

Gearbox Features

Unit

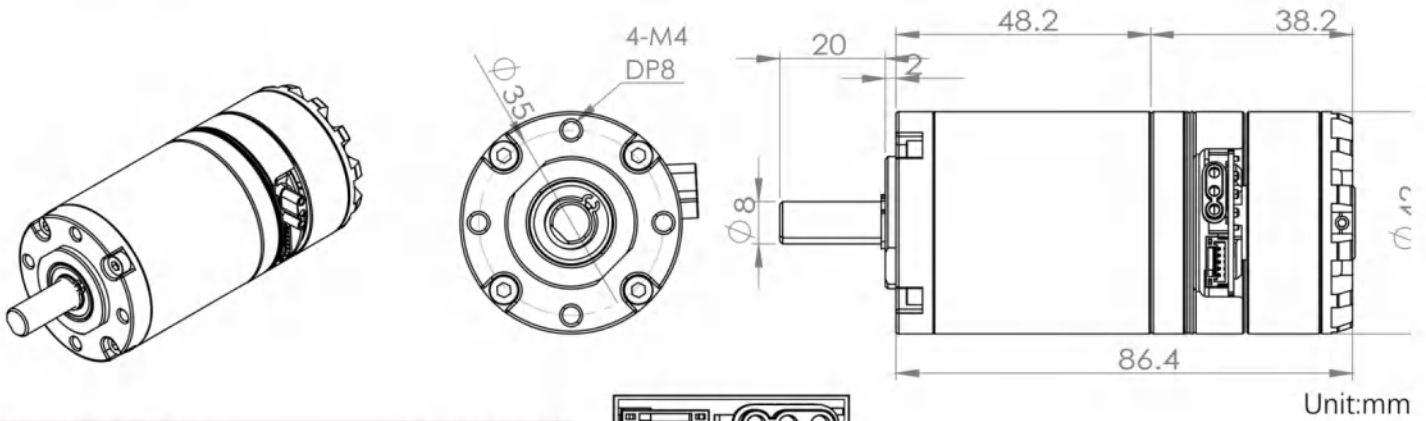
Gearbox model	GP42L2A
Gearbox type	Planetary
Gear ratio	K 10.2/13.7/19.2
Gearbox levels	2
Gearbox diameter	mm 42
Gearbox length	mm 37.9
Gearbox efficiency	90%
Operating torque	kg*cm 60
Brakeing torque	kg*cm 180

Nominal & Stall

Unit

Gearbox ratio	K	10.2	10.2	10.2	13.7	13.7	13.7	19.2	19.2	19.2
Nominal voltage	V	12	24	48	12	24	48	12	24	48
Noload speed	rpm	235	471	941	175	350	701	125	250	500
Nominal speed	rpm	147	333	765	109	248	569	78	177	406
Nominal torque	mNm	1.0	1.8	3.6	1.4	2.5	4.8	1.9	3.5	6.7
Nominal current	A	2.2	2.2	3.7	7.2	2.2	2.2	3.7	7.2	2.2
Maximal power	W	20	20	70	240	20	20	70	240	20
Maximal efficiency		72%	77%	77%	72%	77%	77%	72%	77%	77%
Stall torque*	Nm	3.1	4.1	7.5	4.1	5.5	10	5.8	7.7	14
Stall current	A	3.5	3.5	5.5	9.8	3.5	3.5	5.5	9.8	3.5

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Signal connector: GH1.25-F-5P
 Signal cable : GH5P-M-28AWG-15cm
 Phase connector : MR30PW-F
 Phase cable: MR30-M-22AWG-15cm



Pin definition(left to right):
 HW HV HU 5V GND W V U

FEATURES

General Features

Unit

Diameter	mm	42
Body length	mm	86.4
Output shaft diameter	mm	8
Output shaft length	mm	20

Motor Features

Unit

Motor type	BLDC outrunner
Motor model	MX3310KV200HA
Pole pairs	7
Number of phases	3

*For more motor features please refer datasheet "MX3310KV200HA".

Gearbox Features

Unit

Gearbox model	GP42L2A
Gearbox type	Planetary
Gear ratio	K 32.5/50.9/71.2
Gearbox levels	3
Gearbox diameter	mm 42
Gearbox length	mm 48.2
Gearbox efficiency	90%
Operating torque	kg*cm 120
Brakeing torque	kg*cm 360

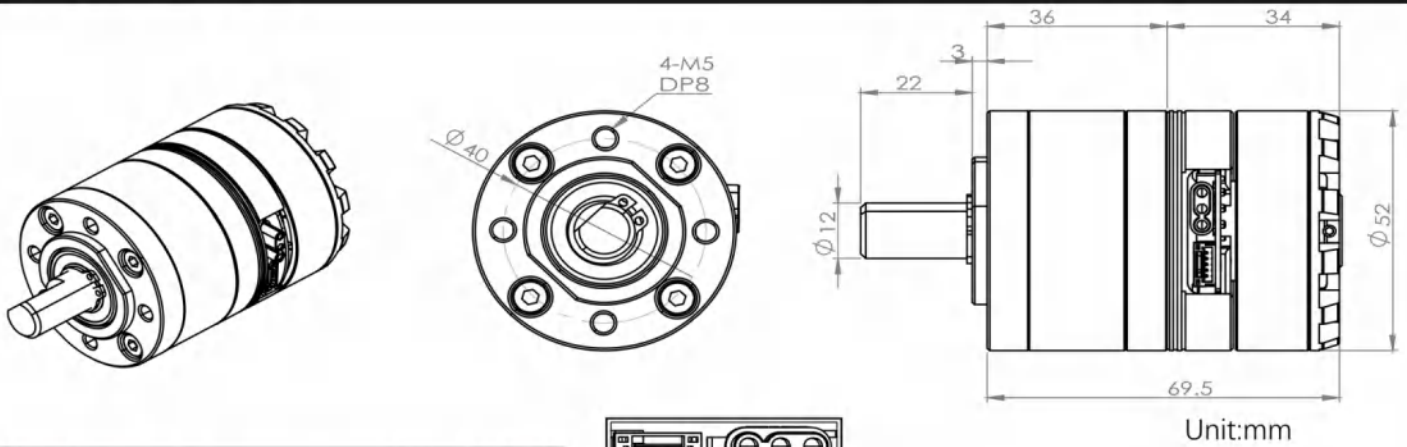
Nominal & Stall

Unit

Gear ratio	K	32.5	32.5	32.5	50.9	50.9	50.9	71.2	71.2	71.2
Nominal voltage	V	12	24	48	12	24	48	12	24	48
Noload speed	rpm	74	148	295	47	94	189	34	67	135
Nominal speed	rpm	46	105	240	29	67	153	21	48	110
Nominal torque	mNm	3.3	5.9	###	5.1	9.2	###	7.1	###	###
Nominal current	A	2.2	2.2	3.7	7.2	2.2	2.2	3.7	7.2	2.2
Maximal power	W	20	20	70	240	20	20	70	240	20
Maximal efficiency		72%	77%	77%	72%	77%	77%	72%	77%	77%
Stall torque*	Nm	9.8	13	24	15	20	38	21	28	53
Stall current	A	3.5	3.5	5.5	9.8	3.5	3.5	5.5	9.8	3.5

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!

MX4210KV150HA-GP52L1A



Signal connector: GH1.25-F-5P
 Signal cable : GH5P-M-28AWG-15cm
 Phase connector : MR30PW-F
 Phase cable: MR30-M-18AWG-15cm



Pin definition(left to right):
 HW HV HU 5V GND W V U

General Characteristics

Basic Dimensions

Unit

Diameter	mm	52
Body length	mm	69.5
Output shaft diameter	mm	12
Output shaft length	mm	22

Motor Features

Unit

Motor type	BLDC outrunner
Motor model	MX4210KV150HA
Pole pairs	7
Number of phases	3

*For more motor features please refer datasheet "MX4210KV150HA".

Gearbox Features

Unit

Gearbox model	GP52L1A
Gearbox type	Planetary
Gear ratio	K 3.7/5.2
Gearbox levels	1
Gearbox diameter	mm 52
Gearbox length	mm 36
Gearbox efficiency	90%
Operating torque	kg*cm 30
Brakeing torque	kg*cm 90

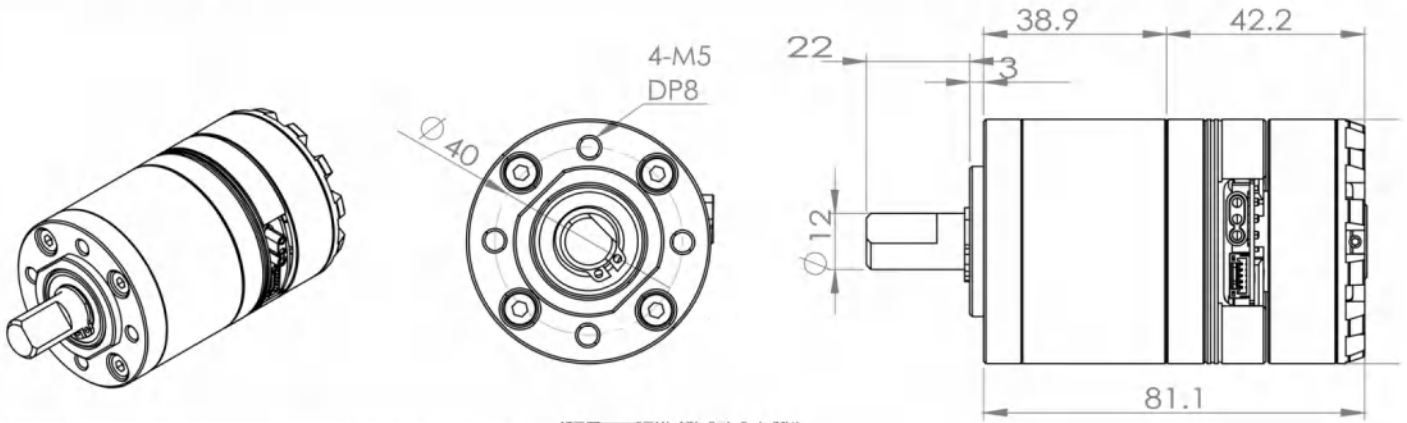
Nominal & Stall

Unit

Gear ratio	K	3.7	5.2	3.7	5.2
Nominal voltage	V	24	24	48	48
Noload speed	rpm	973	692	1946	1385
Nominal speed	rpm	689	490	838	596
Nominal torque	mNm	1036	1456	2072	2912
Nominal current	A	4.2	4.2	8.4	8.4
Maximal power	W	74	74	256	256
Maximal efficiency		77%	77%	77%	77%
Stall torque*	mNm	2479	3484	4810	6760
Stall current	A	11.5	11.5	25	25

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!

MX4210KV150HA-GP52L2A



Signal connector: GH1.25-F-5P
 Signal cable : GH5P-M-28AWG-15cm
 Phase connector : MR30PW-F
 Phase cable: MR30-M-18AWG-15cm



Pin definition(left to right):
 HW HV HU 5V GND W V U

General Characteristics

Basic Dimensions Unit

Diameter	mm	52
Body length	mm	81.1
Output shaft diameter	mm	12
Output shaft length	mm	22

Motor Features Unit

Motor type	BLDC outrunner
Motor model	MX4210KV150HA
Pole pairs	7
Number of phases	3

*For more motor features please refer datasheet "MX4210KV150HA".

Gearbox Features Unit

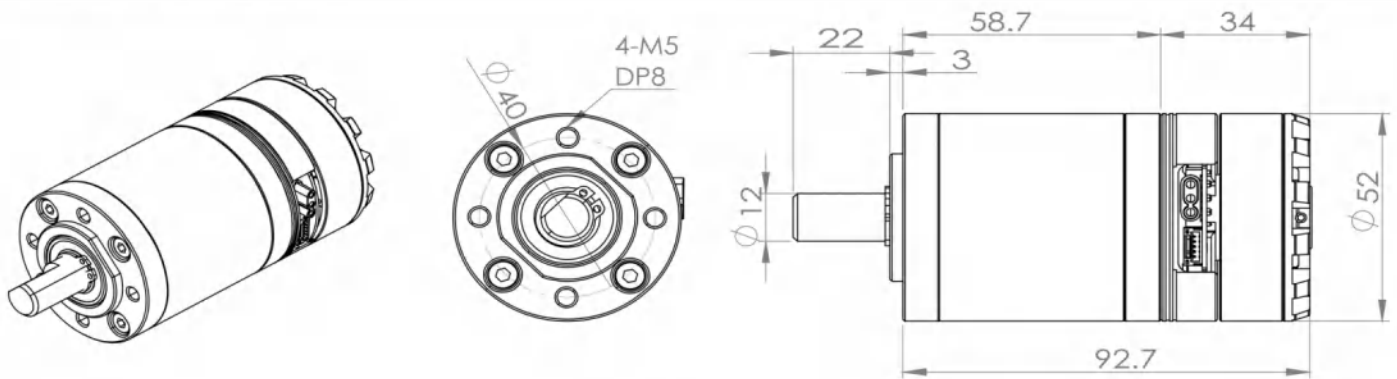
Gearbox model	GP52L2A
Gearbox type	Planetary
Gear ratio	K 13.7/19.2/26.9
Gearbox levels	2
Gearbox diameter	mm 52
Gearbox length	mm 38.9
Gearbox efficiency	90%
Operating torque	kg*cm 80
Brakeing torque	kg*cm 240

Nominal & Stall Unit

Gear ratio	K	13.7	19.2	26.9	13.7	19.2	26.9
Nominal voltage	V	24	24	24	48	48	48
Noload speed	rpm	263	188	134	526	375	268
Nominal speed	rpm	186	133	95	226	161	115
Nominal torque	Nm	3.8	5.4	7.5	7.7	10.8	15.1
Nominal current	A	4.2	4.2	4.2	8.4	8.4	8.4
Maximal power	W	74	74	74	256	256	256
Maximal efficiency		77%	77%	77%	77%	77%	77%
Stall torque*	Nm	9.2	12.9	18.0	17.8	25.0	35.0
Stall current	A	11.5	11.5	11.5	25	25	25

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!

MX4210KV150HA-GP52L3A



Signal connector: GH1.25-F-5P
 Signal cable : GH5P-M-28AWG-15cm
 Phase connector : MR30PW-F
 Phase cable: MR30-M-18AWG-15cm



Pin definition(left to right):
 HW HV HU 5V GND W V U

General Characteristics :

Basic Dimensions	Unit	
Diameter	mm	52
Body length	mm	92.7
Output shaft diameter	mm	12
Output shaft length	mm	22

Motor Features	Unit
Motor type	BLDC outrunner
Motor model	MX4210KV150HA
Pole pairs	7
Number of phases	3
*For more motor features please refer datasheet "MX4210KV150HA".	

Gearbox Features	Unit	
Gearbox model	GP52L1A	
Gearbox type	Planetary	
Gear ratio	K	84.5
Gearbox levels	1	
Gearbox diameter	mm	52
Gearbox length	mm	58.7
Gearbox efficiency	90%	
Operating torque	kg*cm	30
Brakeing torque	kg*cm	90

Nominal & Stall	Unit		
Gear ratio	K	84.5	84.5
Nominal voltage	V	24	48
Noload speed	rpm	43	85
Nominal speed	rpm	30	37
Nominal torque	mNm	23660	47320
Nominal current	A	4.2	8.4
Maximal power	W	74	256
Maximal efficiency	77%		77%
Stall torque*	mNm	56615	109850
Stall current	A	11.5	25
Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!			