Zhengzhou Defy Mechanical & Electrical Equipment Co., Ltd.
Add: No.96 Ruida Road, High-Tech Zone, Zhengzhou City, Henan Province, China
Tel: 0086-0371-55919261 WeChat: 18738992232 Email:olivia@metonec.com

M4215 Series Robot Joint Module(no brake model)

Product Characteristics

1. Isolation CAN communication (EasyCan protocol, simple, quick start, rate 1M). Support contour position mode.
2. With 14(50/80/100) harmonic reducer.
3. 24-bit multi-loop absolute encoder (single-loop 15 bits +multi-loop 9 bits)(battery required).
4. Multistage DD motor structure, large torque output.
5. Integrated servo, simplified wiring, ultra-small volume.
6. Low noise, low vibration, high speed positioning, high reliability.
7. FOC field oriented vector control, support position / speed closed loop.
8. Can work at zero hysteresis given pulse state, following zero hysteresis.
9. CAN upper computer is provided to monitor motor status and modify parameters.
10. Position mode, support pulse + direction signal, encoder follow
11. Speed mode, support PWM duty cycle signal speed regulation
12. With blocking, over-current protection, over-voltage protection.

Motor parameters table

	Parameter	M4215E14B50	M4215E14B80
Overall parameter	Motor rated voltage	36VDC±10%	36VDC±10%
	Motor rated current	2.2A	2.2A
	Output torque after deceleration	9NM	14NM
	Weight	1KG	1KG
	Speed range after deceleration	0~30RPM	0~20RPM
Reducer parameter	Reduction ratio	50	80
	Rated torque	7NM	10NM
	Peak start-stop torque	23NM	30NM
	Allowable maximum value of average load torque	9NM	14NM
	Momentary allowable maximum torque	46NM	61NM
	Backlash	＜20 arc seconds	＜ 20arc seconds
	Design life	8500hour	8500hour
Motor parameter	Torque	0.5NM	0.5NM
	Rated speed	1500RPM	1500RPM
	Maximum rotational speed	2000RPM	2000RPM
	Power	50W	50W
	Resistance	2.65	2.65
	Inductance	1.1mh	1.1mh
	Rotary inertia	$0.9139x10^{-4}$ KG/M ^{2}	$0.9139x10^{-4}$ KG/M ^{2}
Feedback signal		Multi-loop absolute encoder (single-loop 15 bit multi-loop 9 bit)	

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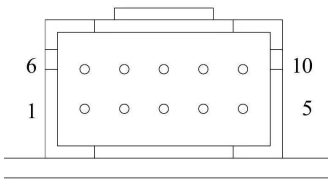
Cooling mode		Natural cooling
Position Control Mode	**Maximum input pulse frequency**	500KHz
	Pulse instruction mode	Pulse + direction, A phase +B phase
	Electronic gear ratio	Set up ~65535 to 65535
	Location sampling frequency	2KHZ
Protection function		Over-current alarm
Communication interface		Easycan (CAN communication, rate 1 M)
Environment	**Ambient temperature**	0~40°
	Max. permissible temperature of motor	85°
	Humidity	5~95%

Interface definitions

Terminal number: facing the terminal, first on the left.

Terminal serial number	Name of name	Function
1	V +36	Positive DC Power +36V. Negative and positive connections can either directly short the power supply or damage the driver
2	GND	DC power source. Negative and positive connections can either directly short the power supply or damage the driver
3	PU+(+5 V)	Pulse control signal: pulse rising edge is effective; PU- high power 3.3~5 V, low power 0~0.5V. For reliable response to a pulse signal, the pulse width should be greater than 1.2μs When using +12 V or +24 V, series resistance is required.
4	PU-(PU)	
5	DIR+(+5 V)	Direction signal: high / low level signal, in order to ensure the reliable commutation of the motor, the direction signal should precede the pulse signal at least 5μs established.DIR- high power 3.3~5 V, low power 0~0.5 V.
6	DIR-(DIR)	



Terminal serial number: facing terminal, lower row from left to right is 12345, upper row from left to right is 6 7 8 9 10.

Terminal serial number	Name of name	Function
1	CANL	Can communication port, use CAN communication needs to power CAN_5V,COM 5
2	nc	
3	nc	
4	CANH	Can communication port, use CAN communication needs to power CAN_5V,COM 5
5	GND	Battery GND
6	COM	Output signal and 485 power supply common ground.
7	WR	Alarm signal output, internal optocoupler NPN output. Normal high resistance state, alarm with COM conduction.
8	BAT	3.7 V Battery positive (up to 5 V)
9	ZO	encoder zero point output. Have zero point signal optical coupling NPN output conduction signal.
10	CAN_5V	485 Communication 5 V power supply, need external power supply. (This power supply is powered by a controller)

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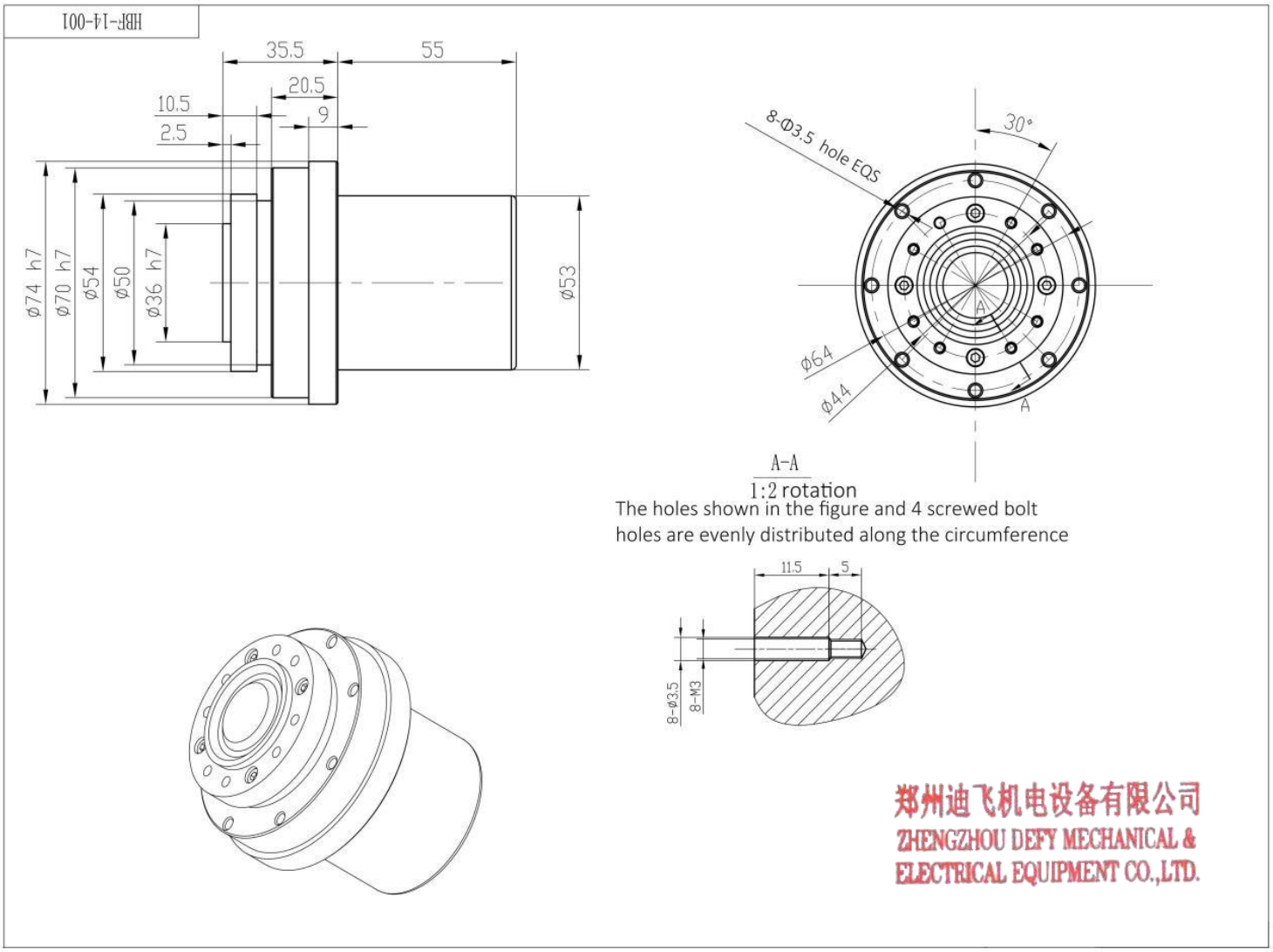
Overall dimensions



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M4230 Series Robot Joint Module(no brake model)

Product characteristics

1.Isolation CAN communication (EasyCan protocol, simple, quick start, rate 1M). Support contour postition mode.
2.With 17(50/80/100) harmonic reducer.
3.24-bit multi-loop absolute encoder (single-loop 15 bits +multi-loop 9 bits)(battery required).
4.Multistage DD motor structure, large torque output.
5.Integrated servo, simplified wiring, ultra-small volume.
6.Low noise, low vibration, high speed positioning, high reliability.
7.FOC field oriented vector control, support position / speed closed loop.
8. Can work at zero hysteresis given pulse state, following zero hysteresis.
9. CAN upper computer is provided to monitor motor status and modify parameters.
10. Position mode, support pulse + direction signal, encoder follow
11. Speed mode, support PWM duty cycle signal speed regulation
12. With blocking, over-current protection, over-voltage protection.

Motor parameters table

Model	Parameters	M4230E17B50	M4230E17B80
Overall parameters	Motor rated voltage	36VDC±10%	36VDC±10%
	Motor rated current	3.5 A	3.5 A
	Output torque after deceleration	34NM	35NM
	Weight	1KG	1KG
	Speed range after deceleration	0~30RPM	0~18RPM
Reducer parameters	Reduction ratio	50	80
	Rated torque	21NM	29NM
	Peak start-stop torque	44NM	56NM
	Allowable maximum value of average load torque	34NM	35NM
	Momentary allowable maximum torque	91NM	113NM
	Backspace	＜ 20 arc seconds	＜ 20 arc seconds
	Design life	8500H	8500H
Motor parameters	Torque	1NM	1NM
	Rated speed	1500RPM	1500RPM
	Maximum rotational speed	2000RPM	2000RPM
	Power	100W	100W
	Resistance	0.86	0.86

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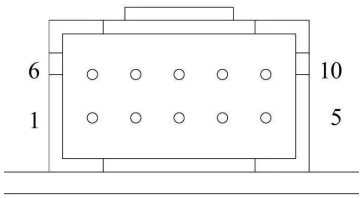
	Inductance	0.8 mh	0.8 mh
	Rotary inertia	0.69 x 10^{-4} KG/M^2	0.69 x 10^{-4}KG/M^2
Feedback signal		Multi-loop absolute encoder (single-loop 15 bit multi-loop 9 bit)	
Cooling mode		Natural cooling	
Position Control Mode	**Maximum input pulse frequency**	500KHz	
	Pulse instruction mode	Pulse + direction, A phase +B phase	
	Electronic gear ratio	Set up ~65535 to 65535	
	Location sampling frequency	2KHz	
Protection function		Over-current alarm	
Communication interface		Easycan (CAN communication, rate 1 M)	
Environment	**Ambient temperature**	0~40°	
	Maximum permissible temperature of motor	85°	
	Humidity	5~95%	

Interface definitions

Terminal serial number: facing the terminal, the left is the first.

Terminal serial number	Name of name	Function
1	V +36	Positive DC Power +36V. Negative and positive connections can either directly short the power supply or damage the driver
2	GND	DC power source. Negative and positive connections can either directly short the power supply or damage the driver
3	PU+(+5 V)	Pulse control signal: pulse rising edge is effective; PU- high power 3.3~5 V, low power 0~0.5 For reliable response to a pulse signal, the pulse width should be greater than 1.2μs When using +12 V or +24 V, series resistance is required.
4	PU-(PU)	
5	DIR+(+5 V)	Direction signal: high / low level signal, in order to ensure the reliable commutation of the motor, the direction signal should precede the pulse signal at least 5μs established.DIR-high power 3.3~5 V, low power 0~0.5 V.

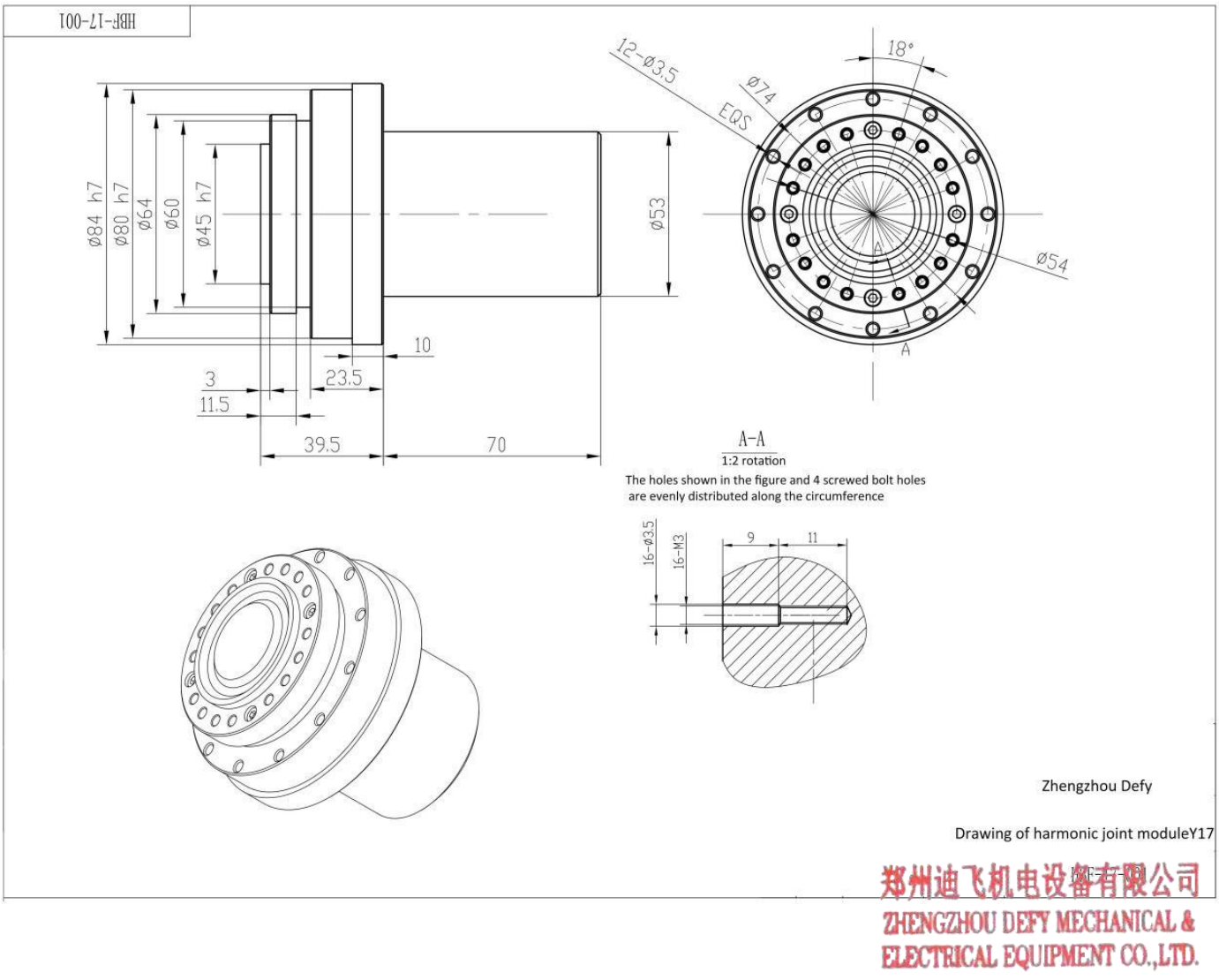


Terminal serial number: facing terminal, lower row from left to right is 12345, upper row from left to right is 6 7 8 9 10.

Terminal serial number	Name of name	Function
1	CANL	Can communication port, use CAN communication needs to power CAN_5V,COM 5
2	nc	
3	nc	
4	CANH	Can communication port, use CAN communication needs to power CAN_5V,COM 5
5	GND	Battery GND

6	COM	Output signal and 485 power supply common ground.
7	WR	Alarm signal output, internal optocoupler NPN output. Normal high resistance state, alarm with COM conduction.
8	BAT	3.7 V Battery positive (up to 5 V)
9	ZO	encoder zero point output. Have zero point signal optical coupling NPN output conduction signal.
10	CAN_5V	485 Communication 5 V power supply, need external power supply. (This power supply is powered by a controller)

Overall dimensions



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M5730 Series Robot Joint Module

Product characteristics

1. Isolate CANopen communication according to CiA301 V4.2.0 specification
   A. Support SDO, TPDO, RPDO.
   B. Support speed mode, position mode (contour mode, interpolation mode)
   C. Support heartbeat production and consumption
2. 15 bit absolute encoder, one lap pulse up to 32768.
3. Multi-stage DD motor structure, large torque output.
4. Harmonic reducer, motor, driver and encoder are integrated.
5. Low noise, low vibration, high speed positioning, high reliability.
6. FOC field oriented vector control, support position / speed closed loop.
7. Can work at zero hysteresis given pulse state, following zero hysteresis.
8. 16-bit electronic gear features.
9. CANopen upper computer is provided, which can monitor motor state and modify parameters.
10. Position mode, support pulse + direction signal, encoder to follow.
11. Speed mode, support PWM duty cycle signal speed regulation
12. It has the function of blocking rotation, over current protection and over voltage protection.
13. Absolute value of low power consumption and multi-turn
    A. All-in-one servo 485/CAN communication version can add multi-turn function.
    B. When the motor is powered, there is a charging circuit inside to charge the battery.
    When the motor is powered off, the battery current consumption is only 0.07mA.
    C. After the motor has no power supply, the motor shaft is driven to rotate to wake up the encoder and continue to memorize the position.
    D. Multi-turn memory range -60000 ~ 60000 laps.
    E. Simple setting of the origin, it can be set as the origin at any position.
    F. Multiple zero return methods: communication zero return, automatic zero return on power-on, and zero point signal output.
    G. Error protection: battery power failure alarm.

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Technical Parameter

Model	Parameters	M5730BE17B50L	M5730BE17B80L	M5730BE17B100L
Overall parameters	Motor rated voltage	36VDC±10%	36VDC±10%	36VDC±10%
	Motor rated current	3.5 A	3.5 A	3.5 A
	Output torque after deceleration	34NM	35NM	51NM
	Weight	1KG	1KG	1KG
	Speed range after deceleration	0~30RPM	0~18RPM	0~15RPM
Reducer parameters	Reduction ratio	50	80	100
	Rated torque	21NM	29NM	31NM
	Peak start-stop torque	44NM	56NM	70NM
	Allowable maximum value of average load torque	34NM	35NM	51NM
	Momentary allowable maximum torque	91NM	113NM	143NM
	Backspace	<20 arc seconds	<20 arc seconds	<20 arc seconds
	Design life	8500H	8500H	8500H
Motor parameters	Torque	1NM	1NM	1NM
	Rated speed	1500RPM	1500RPM	1500RPM
	Maximum rotational speed	2000RPM	2000RPM	2000RPM
	Power	100W	100W	100W
	Resistance	0.86	0.86	0.86
	Inductance	0.8 mh	0.8 mh	0.8 mh
	Rotary inertia	0.69 x 10^{-4} KG/M^2	0.69 x 10^{-4}KG/M^2	0.69 x 10^{-4}KG/M^2
Feedback signal		Multi-loop absolute encoder (single-loop 15 bit multi-loop 9 bit)		
Cooling mode		Natural cooling		
Position Control Mode	**Maximum input pulse frequency**	500KHz		
	Pulse instruction mode	Pulse + direction, A phase +B phase		
	Electronic gear ratio	Set up ~65535 to 65535		
	Location sampling frequency	2KHz		
Protection function		Over-current alarm		
Communication interface		Easycan (CAN communication, rate 1 M)		
Environment	**Ambient temperature**	0~40°		
	Maximum permissible temperature of motor	85°		
	Humidity	5~95%		

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Interface definition

Power Interface

Terminal Serial No.	Name	Function
1	+V	Positive DC Power +24V~36V. Negative and positive connections can either directly short the power supply or damage the driver
2	GND	DC power source. Negative and positive connections can either directly short the power supply or damage the driver

Communication and output interface

DB9 Male head									
1	2	3	4	5		6	7	8	9
PU+	PU-	DIR+	DIR-	WR+		ZO	COM	CANL	CANH
BLUE	BLUE BLACK	GREEN	GREEN BLACK	RED WHITE		YELLOW	BLACK WHITE	BROWN	WHITE

Terminal serial number	Name	Function
1	PU+	Pulse control signal: the rising edge of the pulse is valid; PU- is 3.3~5V at high level, and 0~0.5V at low level. For reliable response to pulsed signals, the pulse width should be greater than 1.2μs. If +12V or +24V is used, a series resistor is required.
2	PU-	
3	DIR+	Direction signal: high/low level signal, in order to ensure the reliable commutation of the motor, the direction signal should be established at least 5μs before the pulse signal. DIR-3.3~5V at high level, 0~0.5V at low level.
4	DIR-	
5	WR+	Alarm signal output, the internal output is optocoupler NPN. Normally, it is in high impedance state, and it is connected to COM during alarm.
6	ZO	Encoder zero output. There is a zero signal optocoupler NPN output conduction signal.
7	COM	The output signal is common to the 485 power supply.
8	CANL	Can Communication port CANL, built-in isolated power supply.
9	CANH	Can Communication port CANH, built-in isolated power supply.

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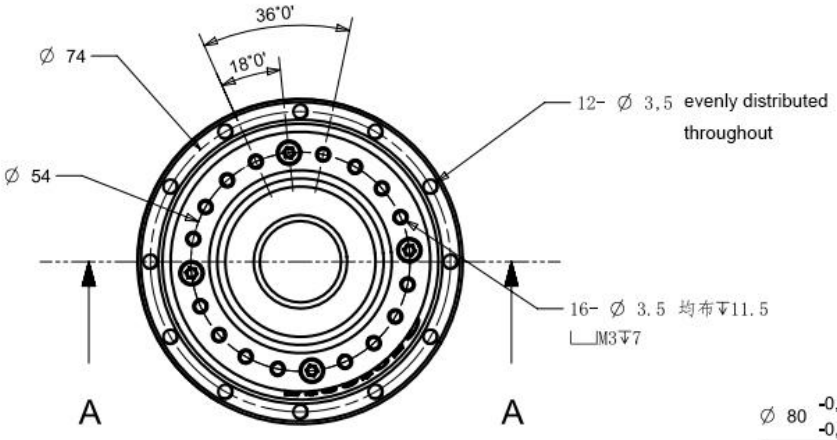
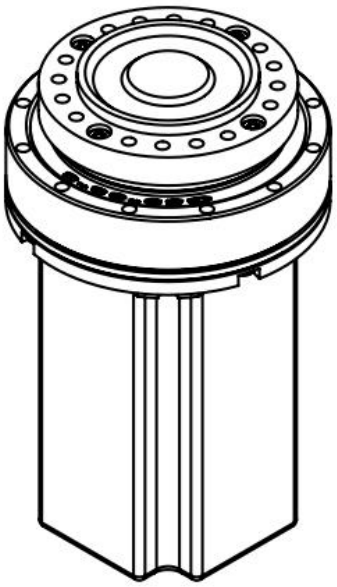
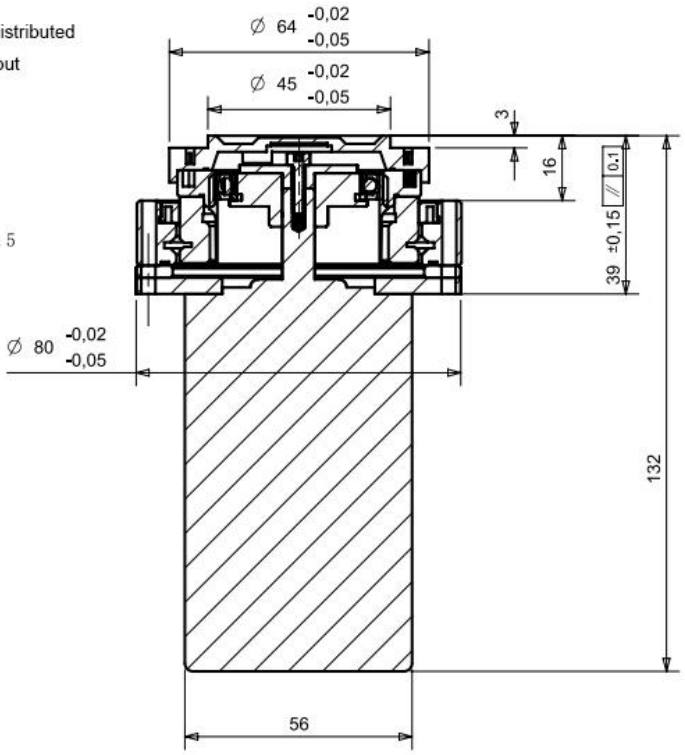
Overall dimension







SECTION A-A

郑州迪飞机电设备有限公司
ZHENGZHOU DEFY MECHANICAL & ELECTRICAL EQUIPMENT CO.,LTD.

Zhengzhou Defy Mechanical & Electrical Equipment Co., Ltd.
Add: No.96 Ruida Road, High-Tech Zone, Zhengzhou City, Henan Province, China
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M8010 Series Robot Joint Module(no brake model)

Product characteristics

1. Isolate CANopen communication according to CiA301 V4.2.0 specification
   A.Support SDO, TPDO, RPDO.
   B.Support speed mode, position mode (contour mode, interpolation mode)
   C.Support heartbeat production and consumption
2. 15 bit absolute encoder, one lap pulse up to 32768.
3. Multi-stage DD motor structure, large torque output.
4. Harmonic reducer, motor, driver and encoder are integrated.
5. Low noise, low vibration, high speed positioning, high reliability.
6. FOC field oriented vector control, support position / speed closed loop.
7. Can work at zero hysteresis given pulse state, following zero hysteresis.
8. 16-bit electronic gear features.
9. CANopen upper computer is provided, which can monitor motor state and modify parameters.
10. Position mode, support pulse + direction signal, encoder to follow.
11. Speed mode, support PWM duty cycle signal speed regulation
12. It has the function of blocking rotation, over current protection and over voltage protection.
13. Absolute value of low power consumption and multi-turn
    A. All-in-one servo 485/CAN communication version can add multi-turn function.
    B. When the motor is powered, there is a charging circuit inside to charge the battery.
    When the motor is powered off, the battery current consumption is only 0.07mA.
    C. After the motor has no power supply, the motor shaft is driven to rotate to wake up the encoder and continue to memorize the position.
    D. Multi-turn memory range -60000 ~ 60000 laps.
    E. Simple setting of the origin, it can be set as the origin at any position.
    F. Multiple zero return methods: communication zero return, automatic zero return on power-on, and zero point signal output.
    G. Error protection: battery power failure alarm.

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Technical Parameter

Model	Parameter	M8010E17B50L	M8010E17B80L	M8010E17B100L
Overall parameter	Motor rated voltage	36VDC±10%	36VDC±10%	36VDC±10%
	Motor rated current	3.5A	3.5A	3.5A
	Output torque after deceleration	34NM	35NM	51NM
	Weight	1KG	1KG	1KG
	Speed range after deceleration	0~30RPM	0~18RPM	0~15RPM
Reducer parameter	Reduction ratio	50	80	100
	Rated torque	21NM	29NM	31NM
	Peak start-stop torque	44NM	56NM	70NM
	Allowable maximum value of average load torque	34NM	35NM	51NM
	Momentary allowable maximum torque	91NM	113NM	143NM
	Backlash	<20 arc seconds	<20 arc seconds	<20 arc seconds
	Design life	8500hour	8500hour	8500hour
Motor parameter	Torque	1NM	1NM	1NM
	Rated speed	1500RPM	1500RPM	1500RPM
	Maximum rotational speed	2000RPM	2000RPM	2000RPM
	Power	100W	100W	100W
	Resistance	0.86	0.86	0.86
	Inductance	0.8mh	0.8mh	0.8mh
	Rotary inertia	$0.69x10^{-4}$ KG/M^2	$0.69x10^{-4}$KG/M^2	0.69x10-4KG/M^2
Feedback signal		Multi-loop absolute encoder (single-loop 15 bit multi-loop 9 bit)		
Cooling mode		Natural cooling		
Position Control Mode	**Maximum input pulse frequency**	500KHz		
	Pulse instruction mode	Pulse + direction, A phase +B phase		
	Electronic gear ratio	Set up 1~65535 to 1~ 65535		
	Location sampling frequency	2KHz		
Protection function		Clogged rotation alarm, over current alarm		
Communication interface		Easycan (CAN communication, rate 1 M)		
Environment	**Ambient temperature**	0~40°		
	Max. permissible temperature of motor	85°		
	Humidity	5~95%		

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Interface definition

Power connector

Terminal Serial No.	Name	Function
1	+V	Positive DC Power +24V~36V. Negative and positive connections can either directly short the power supply or damage the driver
2	GND	DC power source. Negative and positive connections can either directly short the power supply or damage the driver

Communication and output interface

DB9 Male head									
1	2	3	4	5		6	7	8	9
PU+	PU-	DIR+	DIR-	WR+		ZO	COM	CANL	CANH
BLUE	BLUE BLACK	GREEN	GREEN BLACK	RED WHITE		YELLOW	BLACK WHITE	BROWN	WHITE

Terminal serial number	Name	Function
1	PU+	Pulse control signal: the rising edge of the pulse is valid; PU- is 3.3~5V at high level, and 0~0.5V at low level. For reliable response to pulsed signals, the pulse width should be greater than 1.2μs. If +12V or +24V is used, a series resistor is required.
2	PU-	
3	DIR+	Direction signal: high/low level signal, in order to ensure the reliable commutation of the motor, the direction signal should be established at least 5μs before the pulse signal. DIR- 3.3~5V at high level, 0~0.5V at low level.
4	DIR-	
5	WR+	Alarm signal output, the internal output is optocoupler NPN. Normally, it is in high impedance state, and it is connected to COM during alarm.
6	ZO	Encoder zero output. There is a zero signal optocoupler NPN output conduction signal.
7	COM	The output signal is common to the 485 power supply.
8	CANL	Can Communication port CANL, built-in isolated power supply.
9	CANH	Can Communication port CANH, built-in isolated power supply.

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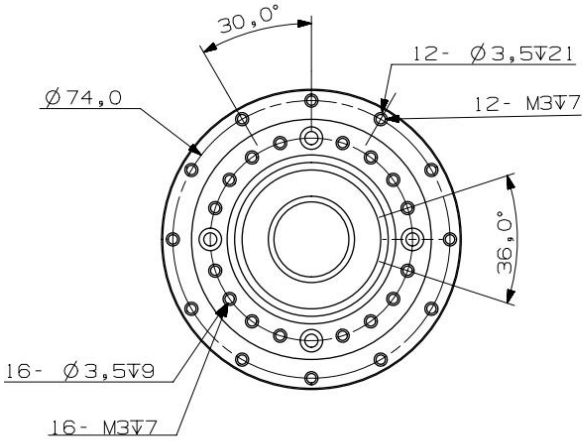
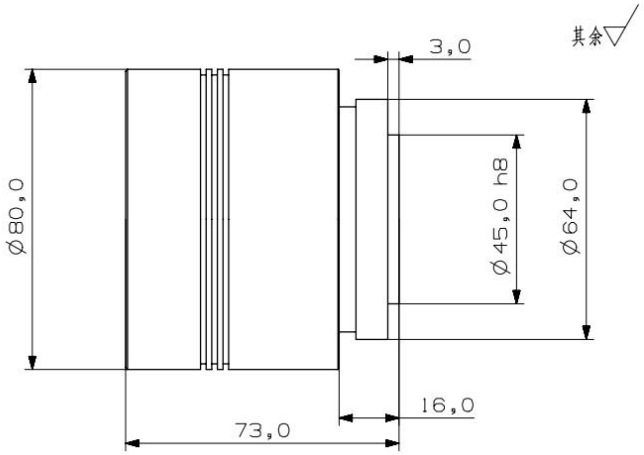
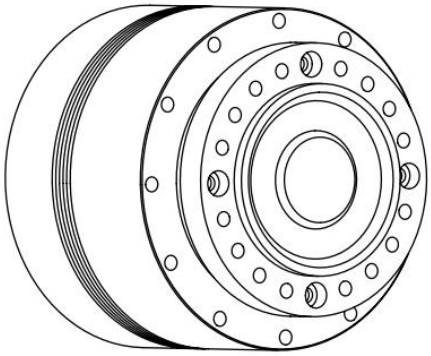
Overall dimension







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M8025 Series Robot Joint Module

Product characteristics

1. Isolate CANopen communication according to CiA301 V4.2.0 specification
   A.Support SDO, TPDO, RPDO.
   B.Support speed mode, position mode (contour mode, interpolation mode)
   C.Support heartbeat production and consumption
2. 15 bit absolute encoder, one lap pulse up to 32768.
3. Multi-stage DD motor structure, large torque output.
4. Harmonic reducer, motor, driver and encoder are integrated.
5. Low noise, low vibration, high speed positioning, high reliability.
6. FOC field oriented vector control, support position / speed closed loop.
7. Can work at zero hysteresis given pulse state, following zero hysteresis.
8. 16-bit electronic gear features.
9. CANopen upper computer is provided, which can monitor motor state and modify parameters.
10. Position mode, support pulse + direction signal, encoder to follow.
11. Speed mode, support PWM duty cycle signal speed regulation
12. It has the function of blocking rotation, over current protection and over voltage protection.
13. Absolute value of low power consumption and multi-turn
    A. All-in-one servo 485/CAN communication version can add multi-turn function.
    B. When the motor is powered, there is a charging circuit inside to charge the battery.
       When the motor is powered off, the battery current consumption is only 0.07mA.
    C. After the motor has no power supply, the motor shaft is driven to rotate to wake up the encoder and continue to memorize the position.
    D. Multi-turn memory range -60000 ~ 60000 laps.
    E. Simple setting of the origin, it can be set as the origin at any position.
    F. Multiple zero return methods: communication zero return, automatic zero return on power-on, and zero point signal output.
    G. Error protection: battery power failure alarm.

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Technical parameters

Model	Parameter	M8025(B)E25B50L	M8025(B)E25B80L	M8025(B)E25B100L
Overall parameter	Motor rated voltage	36VDC±10%	36VDC±10%	36VDC±10%
	Motor rated current	7A	7A	7A
	Output torque after deceleration	51NM	85NM	100NM
	Weight	2.5KG	2.5KG	2.5KG
	Speed range after deceleration	0~30RPM	0~18RPM	0~10RPM
Reducer parameter	Reduction ratio	50	80	100
	Rated torque	51NM	82NM	87NM
	Peak start-stop torque	127NM	178NM	204NM
	Allowable maximum value of average load torque	72NM	113NM	140NM
	Momentary allowable maximum torque	242NM	332NM	369NM
	Backlash	<20 arc seconds	<20 arc seconds	<20 arc seconds
	Design life	8500hour	8500hour	8500hour
Motor parameter	Torque	2NM	2NM	2NM
	Rated speed	1000RPM	1000RPM	1000RPM
	Maximum rotational speed	1500RPM	1500RPM	1500RPM
	Power	200W	200W	200W
	Resistance	0.53	0.53	0.53
	Inductance	0.5mh	0.5mh	0.5mh
	Rotary inertia	$1.74x10^{-4}$ KG/M^2	$1.74x10^{-4}$ KG/M^2	$1.74x10^{-4}$ KG/M^2
Feedback signal		Multi-loop absolute encoder (single-loop 15 bit multi-loop 9 bit)		
Cooling mode		Natural cooling		
Position Control Mode	**Maximum input pulse frequency**	500KHz		
	Pulse instruction mode	Pulse + direction, A phase +B phase		
	Electronic gear ratio	Set up 1~65535 to 1~ 65535		
	Location sampling frequency	2KHz		
Protection function		Clogged rotation alarm, over current alarm		
Communication interface		Easycan (CAN communication, rate 1 M)		
Environment	**Ambient temperature**	0~40°		
	Max. permissible temperature of motor	85°		
	Humidity	5~95%		

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Interface definitions

Power connector

Terminal Serial No.	Name	Function
1	+V	Positive DC Power +24V~36V. Negative and positive connections can either directly short the power supply or damage the driver
2	GND	DC power source. Negative and positive connections can either directly short the power supply or damage the driver

Communication and output interface

DB9 Male head									
1	2	3	4	5		6	7	8	9
PU+	PU-	DIR+	DIR-	WR+		ZO	COM	CANL	CANH
BLUE	BLUE BLACK	GREEN	GREEN BLACK	RED WHITE		YELLOW	BLACK WHITE	BROWN	WHITE

Terminal serial number	Name	Function
1	PU+	Pulse control signal: the rising edge of the pulse is valid; PU- is 3.3~5V at high level, and 0~0.5V at low level. For reliable response to pulsed signals, the pulse width should be greater than 1.2μs. If +12V or +24V is used, a series resistor is required.
2	PU-	
3	DIR+	Direction signal: high/low level signal, in order to ensure the reliable commutation of the motor, the direction signal should be established at least 5μs before the pulse signal. DIR-3.3~5V at high level, 0~0.5V at low level.
4	DIR-	
5	WR+	Alarm signal output, the internal output is optocoupler NPN. Normally, it is in high impedance state, and it is connected to COM during alarm.
6	ZO	Encoder zero output. There is a zero signal optocoupler NPN output conduction signal.
7	COM	The output signal is common to the 485 power supply.
8	CANL	Can Communication port CANL, built-in isolated power supply.
9	CANH	Can Communication port CANH, built-in isolated power supply.

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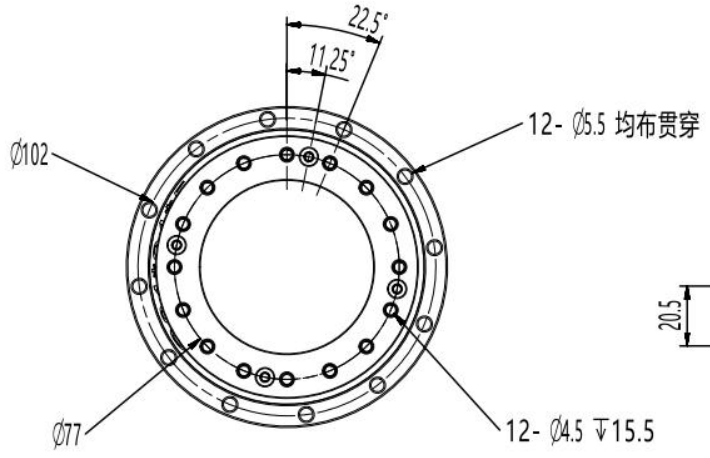
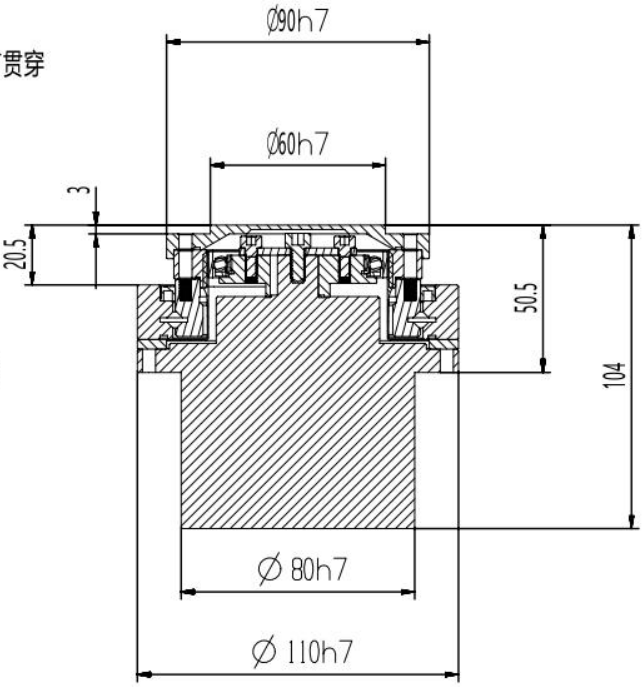
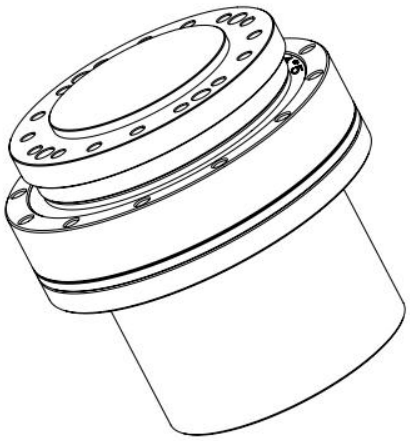
Overall dimensions







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