

A new generation of planetary modules V4 series

(EtherCAT+CAN BUS)
(Dual encoder)



Special Series For Robot



* The pictures of this series of products are subject to the actual products.

X Series Product Features



Hollow Design



High Torque



High Precision



Anti-bending Moment



High Load Capacity



Easy To Operate

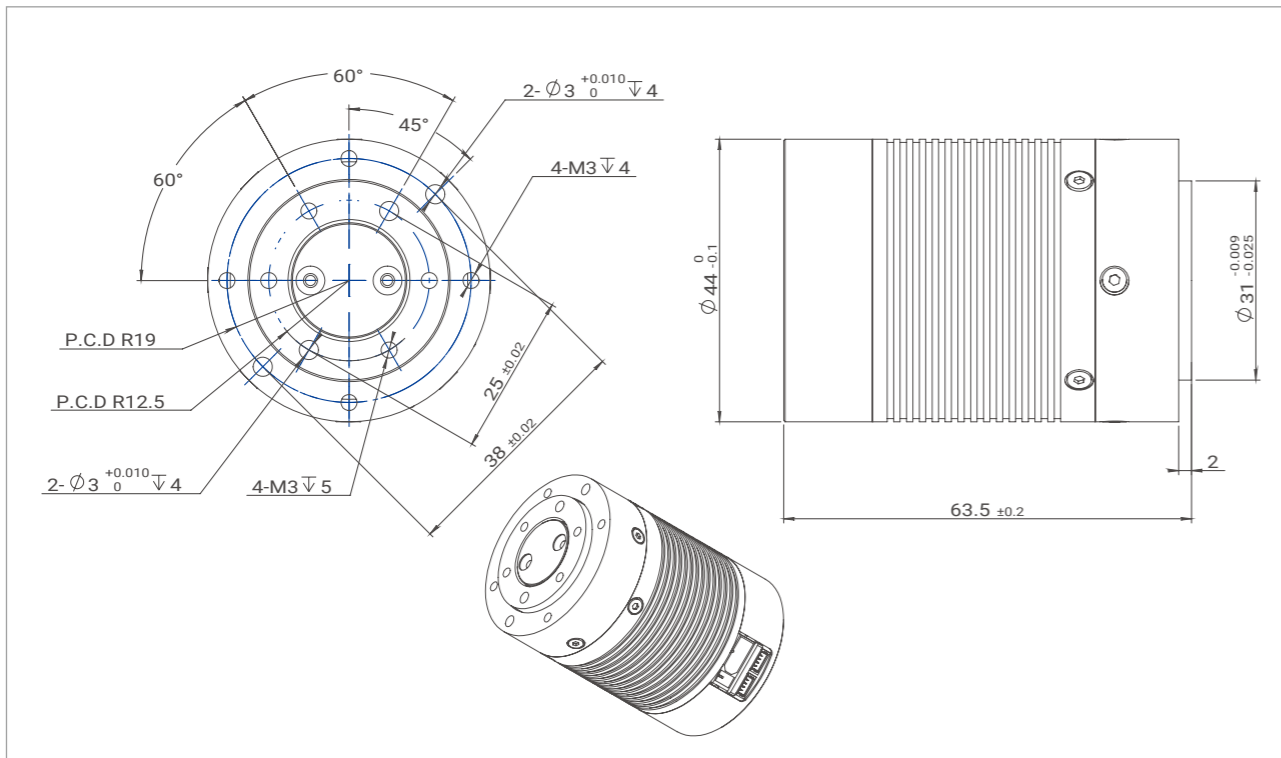
Series Name
RMD-X
Motor Simplified Name
X2-7



Dual encoder

Actuator Full Name	With Brake/Without Brake	Communication
RMD-X2-P28-7-C	N (without brake)	CAN BUS
RMD-X2-P28-7-E	N (without brake)	EtherCAT

Installation Drawing



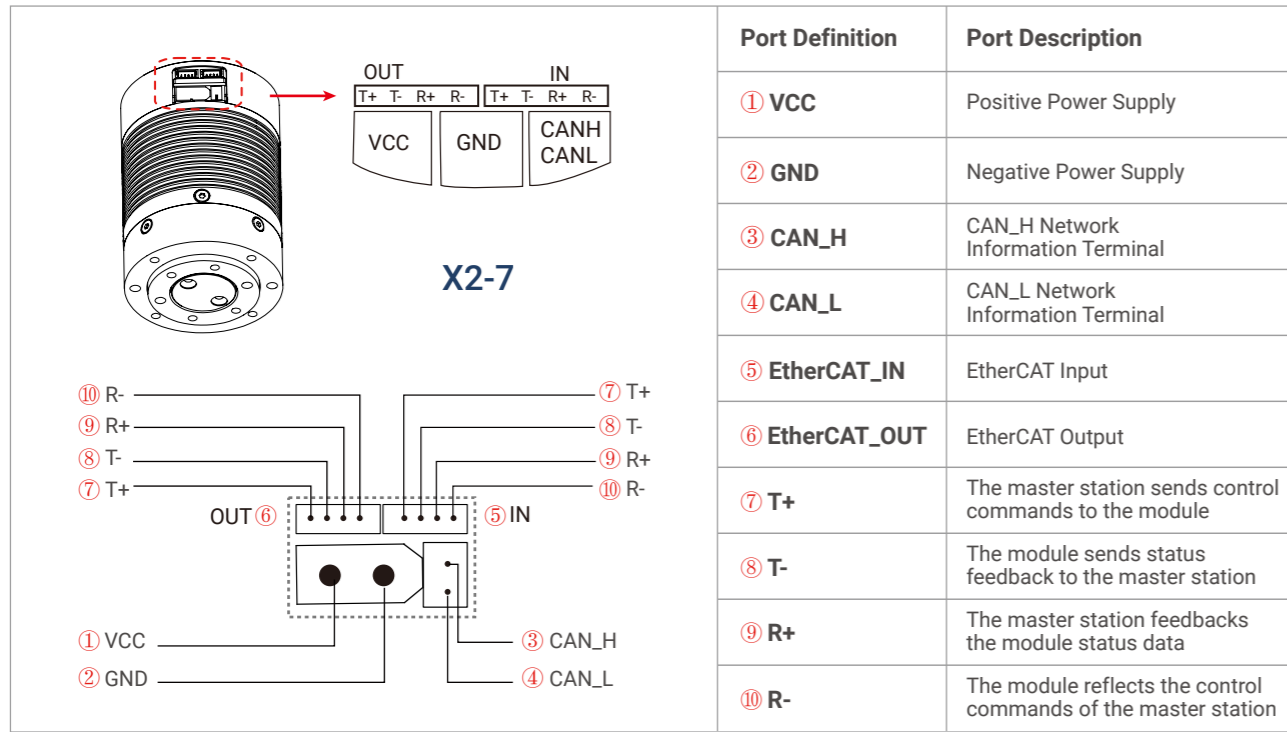
Product Parameters

Parameters	单位 Unit	X2-7	
Gear Ratio	—	28.17	
Input Voltage	V	24	
No Load Speed	RPM	178	
No-Load Input Current	A	1	
Rated Speed	RPM	142	
Rated Torque	N.m	2.5	
Rated Output Power	W	37	
Rated Phase Current	A(rms)	3	
Peak Torque	N.m	7	
Peak Phase Current	A(rms)	8.1	
Efficiency	%	63	
Motor Back-EMF Constant	Vdc/Krpm	4.3	
Module Torque Constant	N.m/A	0.8	
Motor Phase Resistance	Ω	0.61	
Motor Phase Inductance	mH	0.13	
Pole Pair	—	13	
Cogging Torque	mN.m	20	
3 Phase Connection	—	Y	
Back Drive Torque	N.m	0.4	
Backlash	Arcmin	12	
Axial Load	Suffer	KN	0.25
	Stress	KN	0.25
Radial Load	KN	1	
Inertia	Kg.cm ²	0.17	
Encoder Type & Interface	—	Dual Encoder ABS-17BIT (Input) /18BIT (Output)	
Repeat Position Accuracy	Degree	<0.01	
Communication	—	CAN BUS /EtherCAT	
Weight	Kg	0.25	
Insulation Grade	—	F	

Stall torque data

	Torque (N.m)	Temperature Rise (°C)	Stall Time time (s)	Phase current (Arms)
X2-7	3.75	20	15	4.3
	5	48	10	5.7
	6.25	31	8	7.4
	7.5	59	5	8.6

X2-7 Interface Description



X2-7 Packaging Information



List:

- A. Power Supply + CAN BUS Communication Cable *1
- B. 120Ω Terminal Resistance *1
- C. EtherCAT Communication Cable *2
- D. CAN BUS Communication Module *1 (For each order, there will be a free USB-CAN adapter. If need more, please contact sales to buy.)

X2-7 Accessories Marking Instructions

	<p>Power Supply + CAN BUS Communication Cable</p> <p>① XT30(2+2) Connector</p> <table border="1"> <tr> <td>② White Line :</td> <td>CAN_L Network Signal Terminal</td> </tr> <tr> <td>③ Yellow Line :</td> <td>CAN_H Network Signal Terminal</td> </tr> <tr> <td>④ Red Line :</td> <td>VCC Positive Power Supply</td> </tr> <tr> <td>⑤ Black Line :</td> <td>GND Negative Power Supply</td> </tr> </table>	② White Line :	CAN_L Network Signal Terminal	③ Yellow Line :	CAN_H Network Signal Terminal	④ Red Line :	VCC Positive Power Supply	⑤ Black Line :	GND Negative Power Supply		
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③ Yellow Line :	CAN_H Network Signal Terminal										
④ Red Line :	VCC Positive Power Supply										
⑤ Black Line :	GND Negative Power Supply										
	<p>120Ω Terminal Resistance</p>										
	<p>EtherCAT Communication Cable</p> <p>① SH1.0mm(4pin) Connector</p> <table border="1"> <tr> <td>② T</td> <td>EtherCAT Communication Signal Transmission Line</td> </tr> <tr> <td>③ R</td> <td>EtherCAT Communication Signal Receiving Line</td> </tr> </table>	② T	EtherCAT Communication Signal Transmission Line	③ R	EtherCAT Communication Signal Receiving Line						
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③ R	EtherCAT Communication Signal Receiving Line										
	<p>CAN BUS Communication Module</p> <table border="1"> <tr> <td>① CAN1</td> <td>Communication Channel</td> </tr> <tr> <td>② CAN0</td> <td>Communication Channel</td> </tr> <tr> <td>③ CANL CANH</td> <td></td> </tr> <tr> <td>④ CANL CANH</td> <td></td> </tr> <tr> <td>⑤ CAN1 CAN0</td> <td>120Ω Resistance Switch</td> </tr> </table>	① CAN1	Communication Channel	② CAN0	Communication Channel	③ CANL CANH		④ CANL CANH		⑤ CAN1 CAN0	120Ω Resistance Switch
① CAN1	Communication Channel										
② CAN0	Communication Channel										
③ CANL CANH											
④ CANL CANH											
⑤ CAN1 CAN0	120Ω Resistance Switch										
<p>Notes: For each order, there will be a free USB-CAN Adapter. If need more, please contact sales to buy.</p>											

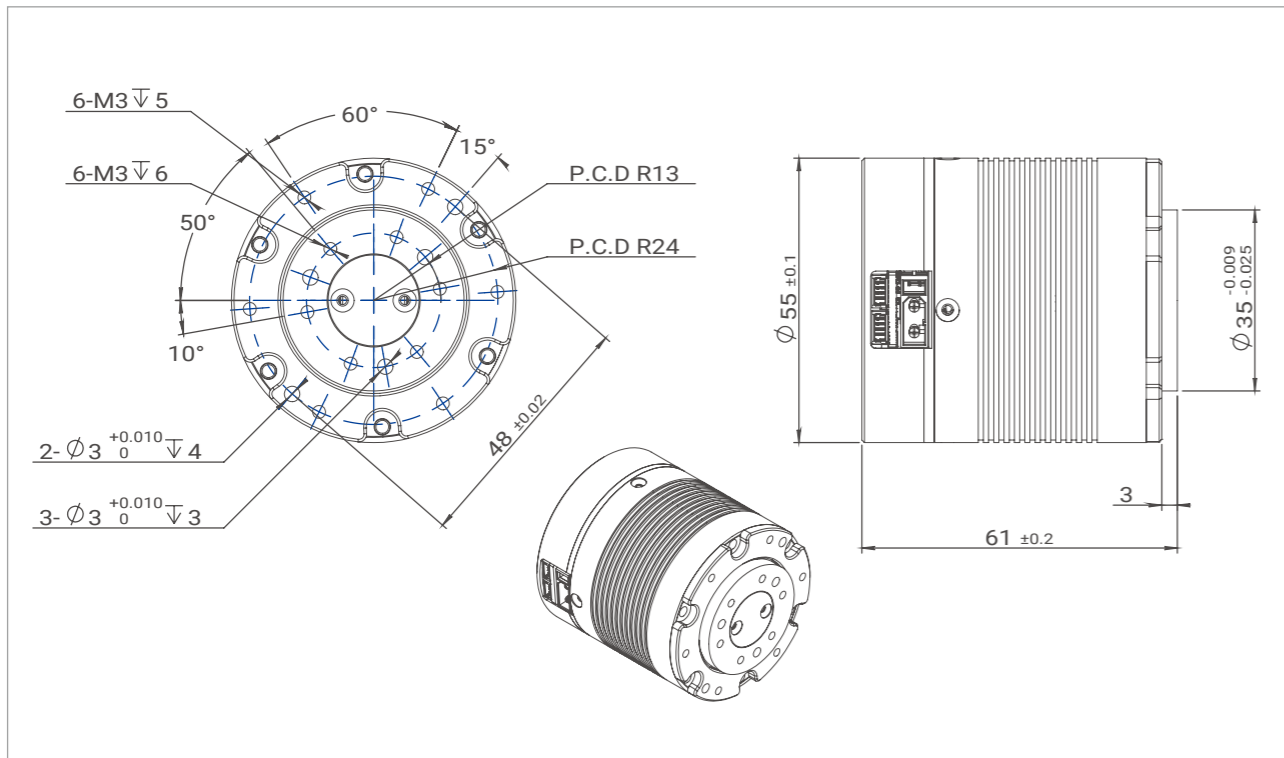
Series Name
RMD-X
Motor Simplified Name
X4-36



Dual encoder

Actuator Full Name	With Brake/Without Brake	Communication
RMD-X4-P36-36-C	N (without brake)	CAN BUS
RMD-X4-P36-36-E	N (without brake)	EtherCAT

Installation Drawing



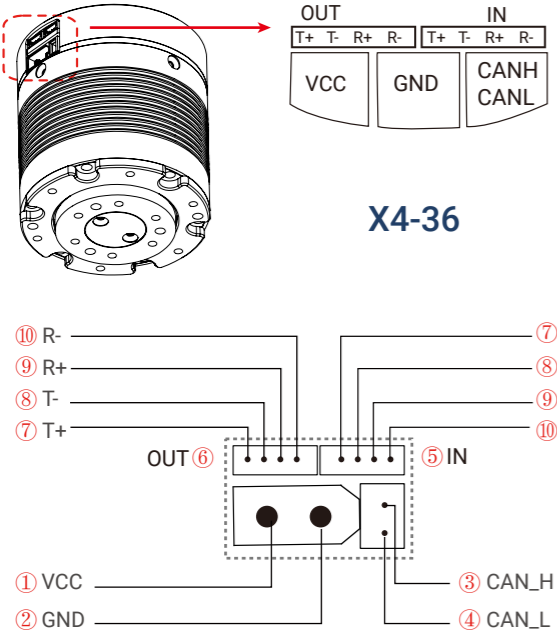
Product Parameters

Parameters	单位 Unit	X4-36	
Gear Ratio	—	36	
Input Voltage	V	24	
No Load Speed	RPM	111	
No-Load Input Current	A	0.9	
Rated Speed	RPM	83	
Rated Torque	N.m	11.5	
Rated Output Power	W	100	
Rated Phase Current	A(rms)	6.1	
Peak Torque	N.m	34	
Peak Phase Current	A(rms)	21.5	
Efficiency	%	63.1	
Motor Back-EMF Constant	Vdc/Krpm	6	
Module Torque Constant	N.m/A	1.9	
Motor Phase Resistance	Ω	0.35	
Motor Phase Inductance	mH	0.17	
Pole Pair	—	13	
Cogging Torque	mN.m	50	
3 Phase Connection	—	Y	
Back Drive Torque	N.m	1.14	
Backlash	Arcmin	10	
Axial Load	Suffer	KN	1.3
	Stress	KN	1.3
Radial Load	KN	1.5	
Inertia	Kg.cm ²	0.3	
Encoder Type & Interface	—	Dual Encoder ABS-17BIT (Input) /18BIT (Output)	
Repeat Position Accuracy	Degree	<0.01	
Communication	—	CAN BUS /EtherCAT	
Weight	Kg	0.36	
Insulation Grade	—	F	

Stall torque data

	Torque (N.m)	Temperature Rise (°C)	Stall Time time (s)	Phase current (Arms)
X4-36	17.25	30	15	9.2
	23	58	10	12.7
	28.75	41	5	16.3
	34.5	50	3	21.2

X4-36 Interface Description



Port Definition	Port Description
① VCC	Positive Power Supply
② GND	Negative Power Supply
③ CAN_H	CAN_H Network Information Terminal
④ CAN_L	CAN_L Network Information Terminal
⑤ EtherCAT_IN	EtherCAT Input
⑥ EtherCAT_OUT	EtherCAT Output
⑦ T+	The master station sends control commands to the module
⑧ T-	The module sends status feedback to the master station
⑨ R+	The master station feeds back the module status data
⑩ R-	The module reflects the control commands of the master station

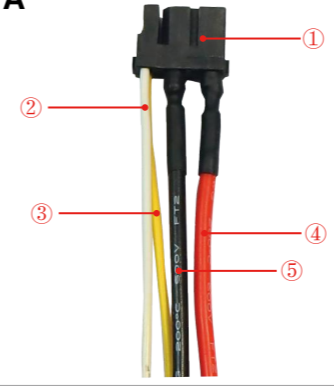

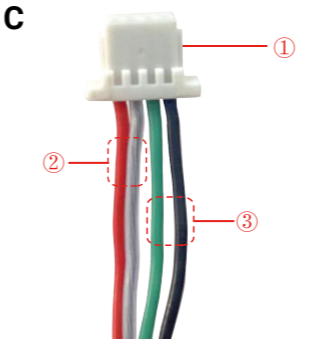
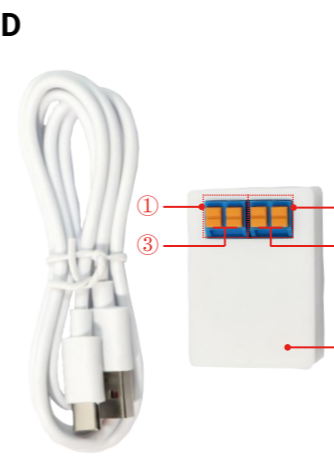
X4-36 Packaging Information



List:

- A. Power Supply + CAN BUS Communication Cable *1
- B. 120Ω Terminal Resistance *1
- C. EtherCAT Communication Cable *2
- D. CAN BUS Communication Module *1 (For each order, there will be a free USB-CAN adapter. If need more, please contact sales to buy.)

X4-36 Accessories Marking Instructions

Power Supply + CAN BUS Communication Cable	
① XT30(2+2) Connector	
② White Line :	CAN_L Network Signal Terminal
③ Yellow Line :	CAN_H Network Signal Terminal
④ Red Line :	VCC Positive Power Supply
⑤ Black Line :	GND Negative Power Supply

120Ω Terminal Resistance	
① 120Ω Terminal Resistance	

EtherCAT Communication Cable	
① SH1.0mm(4pin) Connector	
② T	EtherCAT Communication Signal Transmission Line
③ R	EtherCAT Communication Signal Receiving Line

CAN BUS Communication Module	
① CAN1	Communication Channel
② CAN0	Communication Channel
③ CANL	CANH
④ CANL	CANH
⑤ CAN1	CAN0 120Ω Resistance Switch

Notes: For each order, there will be a free USB-CAN Adapter. If need more, please contact sales to buy.

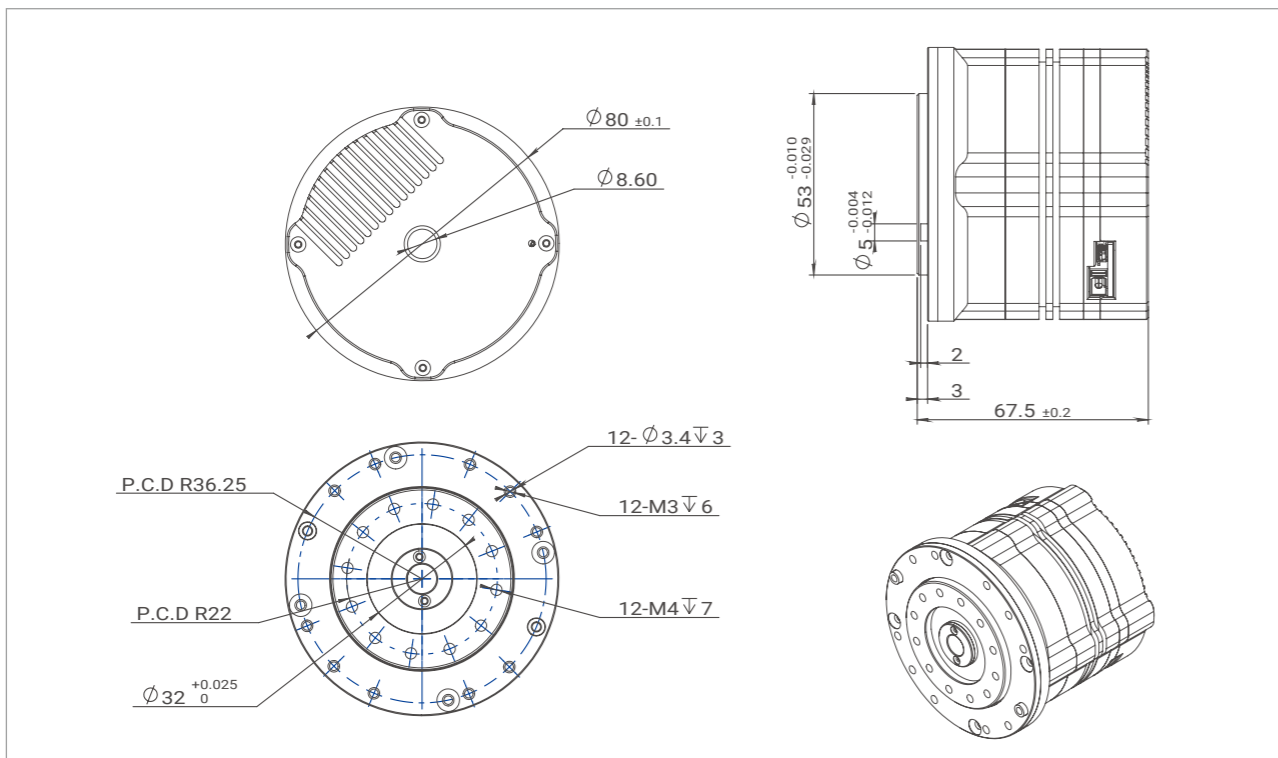
Series Name
RMD-X
Motor Simplified Name
X6-60



Dual encoder

Actuator Full Name	With Brake/Without Brake	Communication
RMD-X6-P20-60-C	N (without brake)	CAN BUS
RMD-X6-P20-60-E	N (without brake)	EtherCAT

Installation Drawing



Product Parameters

Parameters	单位 Unit	X6-60	
Gear Ratio	—	19.612	
Input Voltage	V	48	
No Load Speed	RPM	176	
No-Load Input Current	A	0.9	
Rated Speed	RPM	153	
Rated Torque	N.m	20	
Rated Output Power	W	320	
Rated Phase Current	A(rms)	9.5	
Peak Torque	N.m	60	
Peak Phase Current	A(rms)	29.1	
Efficiency	%	72.7	
Motor Back-EMF Constant	Vdc/Krpm	16	
Module Torque Constant	N.m/A	2.1	
Motor Phase Resistance	Ω	0.41	
Motor Phase Inductance	mH	0.51	
Pole Pair	—	10	
Cogging Torque	mN.m	30	
3 Phase Connection	—	Y	
Back Drive Torque	N.m	1.6	
Backlash	Arcmin	10	
Axial Load	Suffer	KN	1.8
	Stress	KN	0.8
Radial Load	KN	2	
Inertia	Kg.cm ²	0.66	
Encoder Type & Interface	—	Dual Encoder ABS-17BIT (Input) /17BIT (Output)	
Repeat Position Accuracy	Degree	<0.01	
Communication	—	CAN BUS /EtherCAT	
Weight	Kg	0.82	
Insulation Grade	—	F	

Stall torque data

	Torque (N.m)	Temperature Rise (°C)	Stall Time time (s)	Phase current (Arms)
X6-60	30	17	15	12.7
	40	29	10	17.7
	50	37	8	22.6
	60	24	5	28.3

X6-60 Interface Description

Port Definition	Port Description
① EtherCAT_OUT	EtherCAT Output
② EtherCAT_IN	EtherCAT Input
③ CAN_L	CAN_L Network Information Terminal
④ CAN_H	CAN_H Network Information Terminal
⑤ GND	Negative Power Supply
⑥ VCC	Positive Power Supply
⑦ T-	The module sends status feedback to the master station
⑧ T+	The master station sends control commands to the module
⑨ R-	The module reflects the control commands of the master station
⑩ R+	The master station feedbacks the module status data

X6-60 Packaging Information



List:

- A. Power Supply + CAN BUS Communication Cable *2
- B. 120Ω Terminal Resistance *1
- C. EtherCAT Communication Cable *2
- D. CAN BUS Communication Module *1 (For each order, there will be a free USB-CAN adapter. If need more, please contact sales to buy.)

X6-60 Accessories Marking Instructions

Power Supply + CAN BUS Communication Cable	
① XT30(2+2) Connector	
② White Line:	CAN_L Network Signal Terminal
③ Yellow Line:	CAN_H Network Signal Terminal
④ Red Line:	VCC Positive Power Supply
⑤ Black Line:	GND Negative Power Supply

120Ω Terminal Resistance	
① 120Ω Resistor	

EtherCAT Communication Cable	
① SH1.0mm(4pin) Connector	
② T	EtherCAT Communication Signal Transmission Line
③ R	EtherCAT Communication Signal Receiving Line

CAN BUS Communication Module	
① CAN1	Communication Channel
② CAN0	Communication Channel
③ CANL	CANH
④ CANL	CANH
⑤	CAN1 CAN0 120Ω Resistance Switch

Notes: For each order, there will be a free USB-CAN Adapter. If need more, please contact sales to buy.

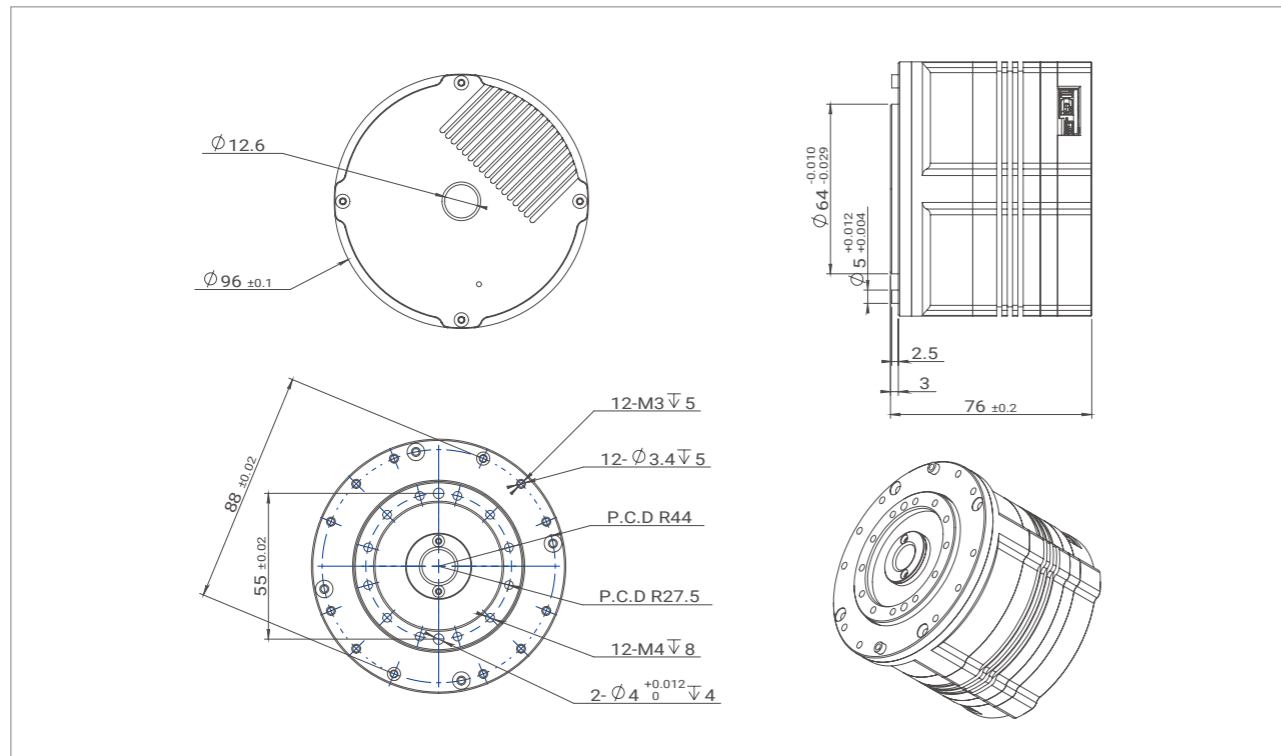
Series Name
RMD-X
Motor Simplified Name
X8-120



Dual encoder

Actuator Full Name	With Brake/Without Brake	Communication
RMD-X8-P20-120-C	N (without brake)	CAN BUS
RMD-X8-P20-120-E	N (without brake)	EtherCAT

Installation Drawing



Product Parameters

Parameters	单位 Unit	X8-120	
Gear Ratio	—	19.612	
Input Voltage	V	48	
No Load Speed	RPM	158	
No-Load Input Current	A	1.6	
Rated Speed	RPM	127	
Rated Torque	N.m	43	
Rated Output Power	W	574	
Rated Phase Current	A(rms)	17.6	
Peak Torque	N.m	110	
Peak Phase Current	A(rms)	43.8	
Efficiency	%	79	
Motor Back-EMF Constant	Vdc/Krpm	19.2	
Module Torque Constant	N.m/A	2.4	
Motor Phase Resistance	Ω	0.18	
Motor Phase Inductance	mH	0.31	
Pole Pair	—	10	
Cogging Torque	mN.m	50	
3 Phase Connection	—	Y	
Back Drive Torque	N.m	3.21	
Backlash	Arcmin	10	
Axial Load	Suffer	KN	4
	Stress	KN	1
Radial Load	KN	4.5	
Inertia	Kg.cm ²	1.5	
Encoder Type & Interface	—	Dual Encoder ABS-17BIT (Input) /17BIT (Output)	
Repeat Position Accuracy	Degree	<0.01	
Communication	—	CAN BUS /EtherCAT	
Weight	Kg	1.4	
Insulation Grade	—	F	

Stall torque data

	Torque (N.m)	Temperature Rise (°C)	Stall Time time (s)	Phase current (Arms)
X8-120	64.5	7	15	23.3
	86	10	10	31.1
	107.5	26	8	38.9
	129	30	5	43.8

X8-120 Interface Description

Port Definition	Port Description
① EtherCAT_OUT	EtherCAT Output
② EtherCAT_IN	EtherCAT Input
③ CAN_L	CAN_L Network Information Terminal
④ CAN_H	CAN_H Network Information Terminal
⑤ GND	Negative Power Supply
⑥ VCC	Positive Power Supply
⑦ T-	The module sends status feedback to the master station
⑧ T+	The master station sends control commands to the module
⑨ R-	The module reflects the control commands of the master station
⑩ R+	The master station feedbacks the module status data

X8-120 Packaging Information



List:

- A. Power Supply + CAN BUS Communication Cable *2
- B. 120Ω Terminal Resistance *1
- C. EtherCAT Communication Cable *2
- D. CAN BUS Communication Module *1 (For each order, there will be a free USB-CAN adapter. If need more, please contact sales to buy.)

X8-120 Accessories Marking Instructions

Power Supply + CAN BUS Communication Cable	
① XT30(2+2) Connector	
② White Line :	CAN_L Network Signal Terminal
③ Yellow Line :	CAN_H Network Signal Terminal
④ Red Line :	VCC Positive Power Supply
⑤ Black Line :	GND Negative Power Supply

120Ω Terminal Resistance	
① 120Ω Terminal Resistance	

EtherCAT Communication Cable	
① SH1.0mm(4pin) Connector	
② T	EtherCAT Communication Signal Transmission Line
③ R	EtherCAT Communication Signal Receiving Line

CAN BUS Communication Module	
① CAN1	Communication Channel
② CAN0	Communication Channel
③ CANL	CANH
④ CANL	CANH
⑤ CAN1	CAN0 120Ω Resistance Switch

Notes: For each order, there will be a free USB-CAN Adapter. If need more, please contact sales to buy.

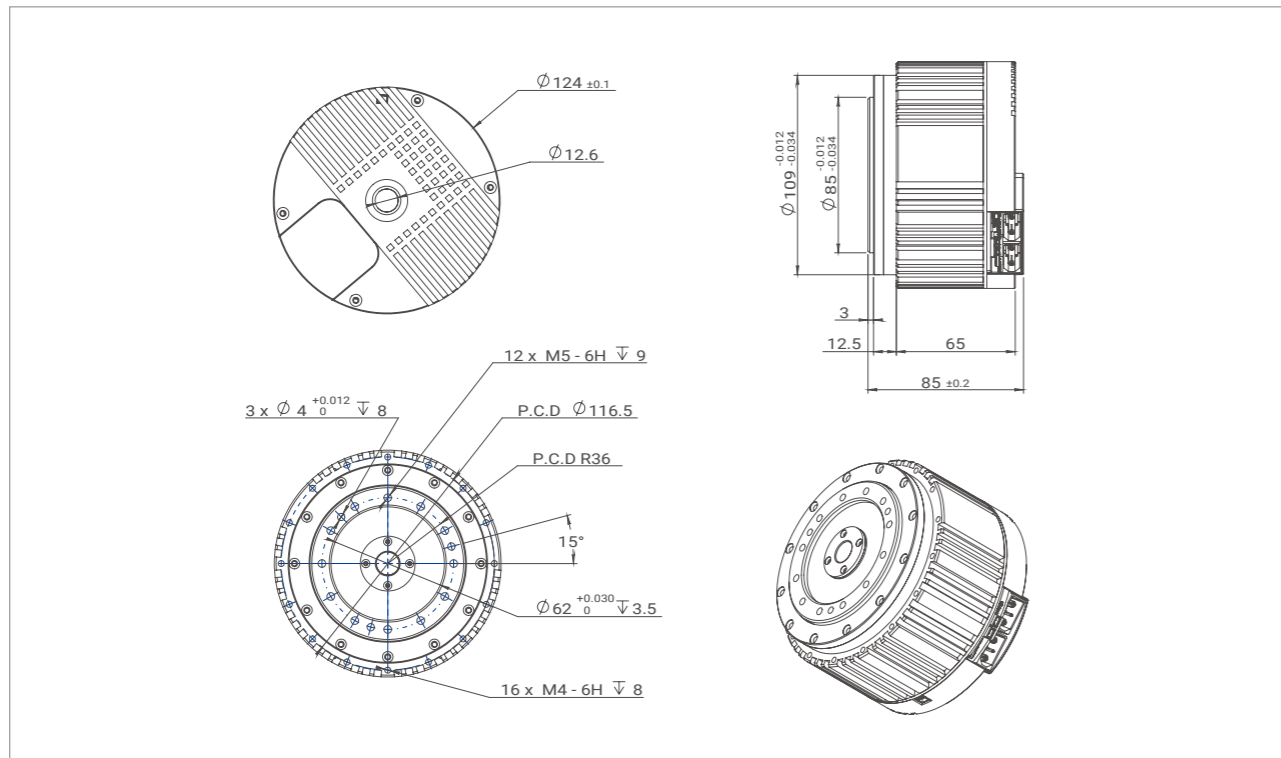
Series Name
RMD-X
Motor Simplified Name
X12-320



Dual encoder

Actuator Full Name	With Brake/Without Brake	Communication
RMD-X12-P20-320-C	N (without brake)	CAN BUS
RMD-X12-P20-320-E	N (without brake)	EtherCAT

Installation Drawing



Product Parameters

Parameters	单位 Unit	X12-320	
Gear Ratio	—	20	
Input Voltage	V	48	
No Load Speed	RPM	125	
No-Load Input Current	A	2.7	
Rated Speed	RPM	100	
Rated Torque	N.m	100	
Rated Output Power	W	1000	
Rated Phase Current	A(rms)	30	
Peak Torque	N.m	320	
Peak Phase Current	A(rms)	100	
Efficiency	%	75	
Motor Back-EMF Constant	Vdc/Krpm	17.9	
Module Torque Constant	N.m/A	3.3	
Motor Phase Resistance	Ω	0.12	
Motor Phase Inductance	mH	0.05	
Pole Pair	—	20	
Cogging Torque	mN.m	1420	
3 Phase Connection	—	Y	
Back Drive Torque	N.m	3.8	
Backlash	Arcmin	10	
Axial Load	Suffer	KN	4.5
	Stress	KN	4.5
Radial Load	KN	5	
Inertia	Kg.cm ²	12.9	
Encoder Type & Interface	—	Dual Encoder ABS-17BIT (Input) /17BIT (Output)	
Repeat Position Accuracy	Degree	<0.01	
Communication	—	CAN BUS /EtherCAT	
Weight	Kg	2.6	
Insulation Grade	—	F	

X12-320 Interface Description

Port Definition	Port Description
① EtherCAT_OUT	EtherCAT Output
② EtherCAT_IN	EtherCAT Input
③ VCC	Positive Power Supply
④ CAN_L	CAN_L Network Information Terminal
⑤ CAN_H	CAN_H Network Information Terminal
⑥ GND	Negative Power Supply
⑦ T-	The module sends status feedback to the master station
⑧ T+	The master station sends control commands to the module
⑨ R-	The module reflects the control commands of the master station
⑩ R+	The master station feeds back the module status data

X12-320 Packaging Information



List:

- A. Power Supply + CAN BUS Communication Cable *2
- B. 120Ω Terminal Resistance *1
- C. EtherCAT Communication Cable *2
- D. CAN BUS Communication Module *1 (For each order, there will be a free USB-CAN adapter. If need more, please contact sales to buy.)

X12-320 Accessories Marking Instructions

Power Supply + CAN BUS Communication Cable	
① XT90Power Supply + CAN BUS Communication Cable	
② White Line :	CAN_L Network Signal Terminal
③ Yellow Line :	CAN_H Network Signal Terminal
④ Red Line :	VCC Positive Power Supply
⑤ Black Line :	GND Negative Power Supply

120Ω Terminal Resistance	
① 120Ω Terminal Resistance	

EtherCAT Communication Cable	
① SH1.0mm(4pin) Connector	
② T	EtherCAT Communication Signal Transmission Line
③ R	EtherCAT Communication Signal Receiving Line

CAN BUS Communication Module	
① CAN1 Communication Channel	
② CAN0 Communication Channel	
③ CANL CANH	
④ CANL CANH	
⑤ CAN1 CAN0 120Ω Resistance Switch	

Notes: For each order, there will be a free USB-CAN Adapter. If need more, please contact sales to buy.

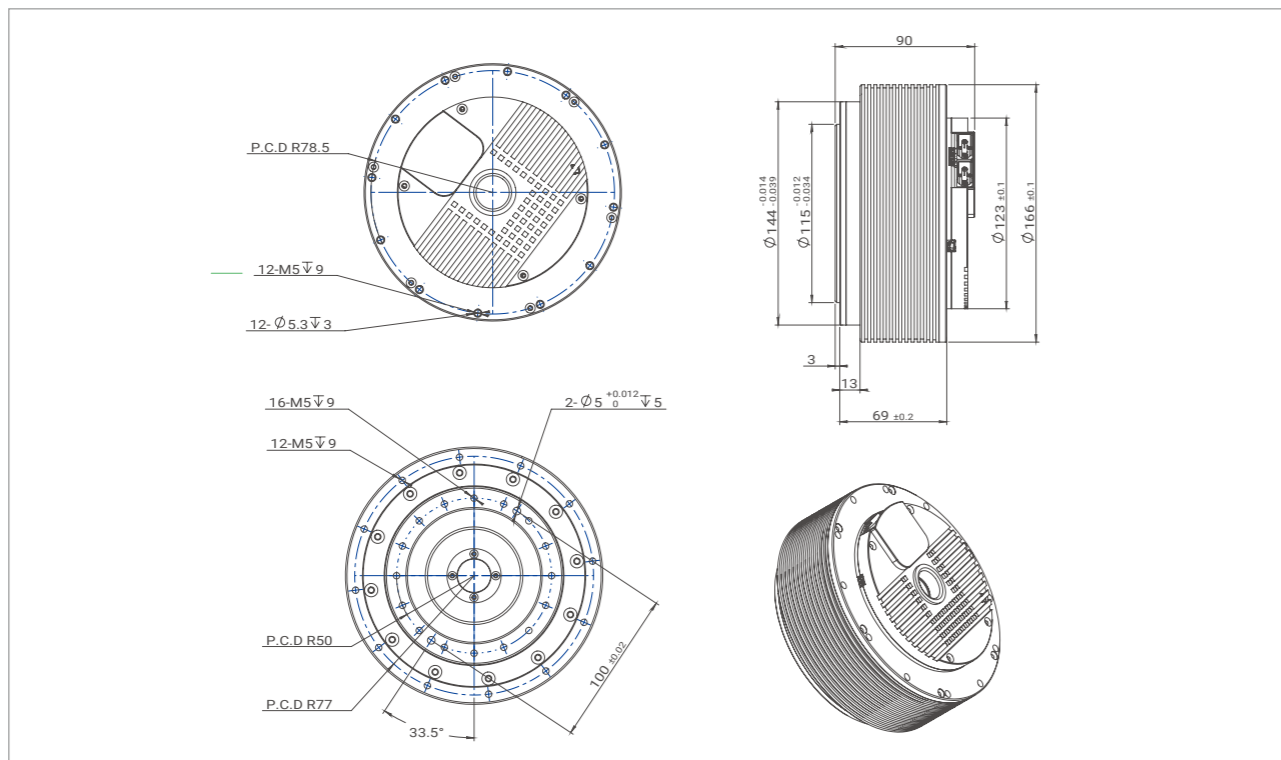
Series Name
RMD-X
Motor Simplified Name
X15-450



Dual encoder

Actuator Full Name	With Brake/Without Brake	Communication
RMD-X15-P20-450-C	N (without brake)	CAN BUS
RMD-X15-P20-450-E	N (without brake)	EtherCAT

Installation Drawing



Product Parameters

Parameters	单位 Unit	X15-450	
Gear Ratio	—	20.25	
Input Voltage	V	72	
No Load Speed	RPM	93	
No-Load Input Current	A	3.5	
Rated Speed	RPM	74	
Rated Torque	N.m	145	
Rated Output Power	W	1124	
Rated Phase Current	A(rms)	25	
Peak Torque	N.m	450	
Peak Phase Current	A(rms)	69.2	
Efficiency	%	82.4	
Motor Back-EMF Constant	Vdc/Krpm	29.9	
Module Torque Constant	N.m/A	5.8	
Motor Phase Resistance	Ω	0.08	
Motor Phase Inductance	mH	0.14	
Pole Pair	—	20	
Cogging Torque	mN.m	1480	
3 Phase Connection	—	Y	
Back Drive Torque	N.m	4	
Backlash	Arcmin	10	
Axial Load	Suffer	KN	5.4
	Stress	KN	5.4
Radial Load	KN	6	
Inertia	Kg.cm ²	31.6	
Encoder Type & Interface	—	Dual Encoder ABS-17BIT (Input) /17BIT (Output)	
Repeat Position Accuracy	Degree	<0.01	
Communication	—	CAN BUS/EtherCAT	
Weight	Kg	3.6	
Insulation Grade	—	F	

Stall torque data

	Torque (N.m)	Temperature Rise (°C)	Stall Time time (s)	Phase current (Arms)
X15-450	217.5	15	15	31.1
	290	15	10	41
	362.5	20	8	51.6
	435	25	5	67.2

X15-450 Interface Description

Port Definition	Port Description
① EtherCAT_OUT	EtherCAT Output
② EtherCAT_IN	EtherCAT Input
③ VCC	Positive Power Supply
④ CAN_L	CAN_L Network Information Terminal
⑤ CAN_H	CAN_H Network Information Terminal
⑥ GND	Negative Power Supply
⑦ T-	The module sends status feedback to the master station
⑧ T+	The master station sends control commands to the module
⑨ R-	The module reflects the control commands of the master station
⑩ R+	The master station feeds back the module status data

X15-450 Packaging Information



List:

- A. Power Supply + CAN BUS Communication Cable *2
- B. 120Ω Terminal Resistance *1
- C. EtherCAT Communication Cable *2
- D. CAN BUS Communication Module *1 (For each order, there will be a free USB-CAN adapter. If need more, please contact sales to buy.)

X15-450 Accessories Marking Instructions

	Power Supply + CAN BUS Communication Cable	
	① XT90Power Supply + CAN BUS Communication Cable	
	② White Line :	CAN_L Network Signal Terminal
	③ Yellow Line :	CAN_H Network Signal Terminal
	④ Red Line :	VCC Positive Power Supply
	⑤ Black Line :	GND Negative Power Supply
	120Ω Terminal Resistance	
	EtherCAT Communication Cable	
	① SH1.0mm(4pin) Connector	
	② T	EtherCAT Communication Signal Transmission Line
	③ R	EtherCAT Communication Signal Receiving Line
	CAN BUS Communication Module	
	① CAN1 Communication Channel	
	② CAN0 Communication Channel	
	③ CANL CANH	
	④ CANL CANH	
⑤ CAN1 CAN0 120Ω Resistance Switch		
<p>Notes: For each order, there will be a free USB-CAN Adapter. If need more, please contact sales to buy.</p>		