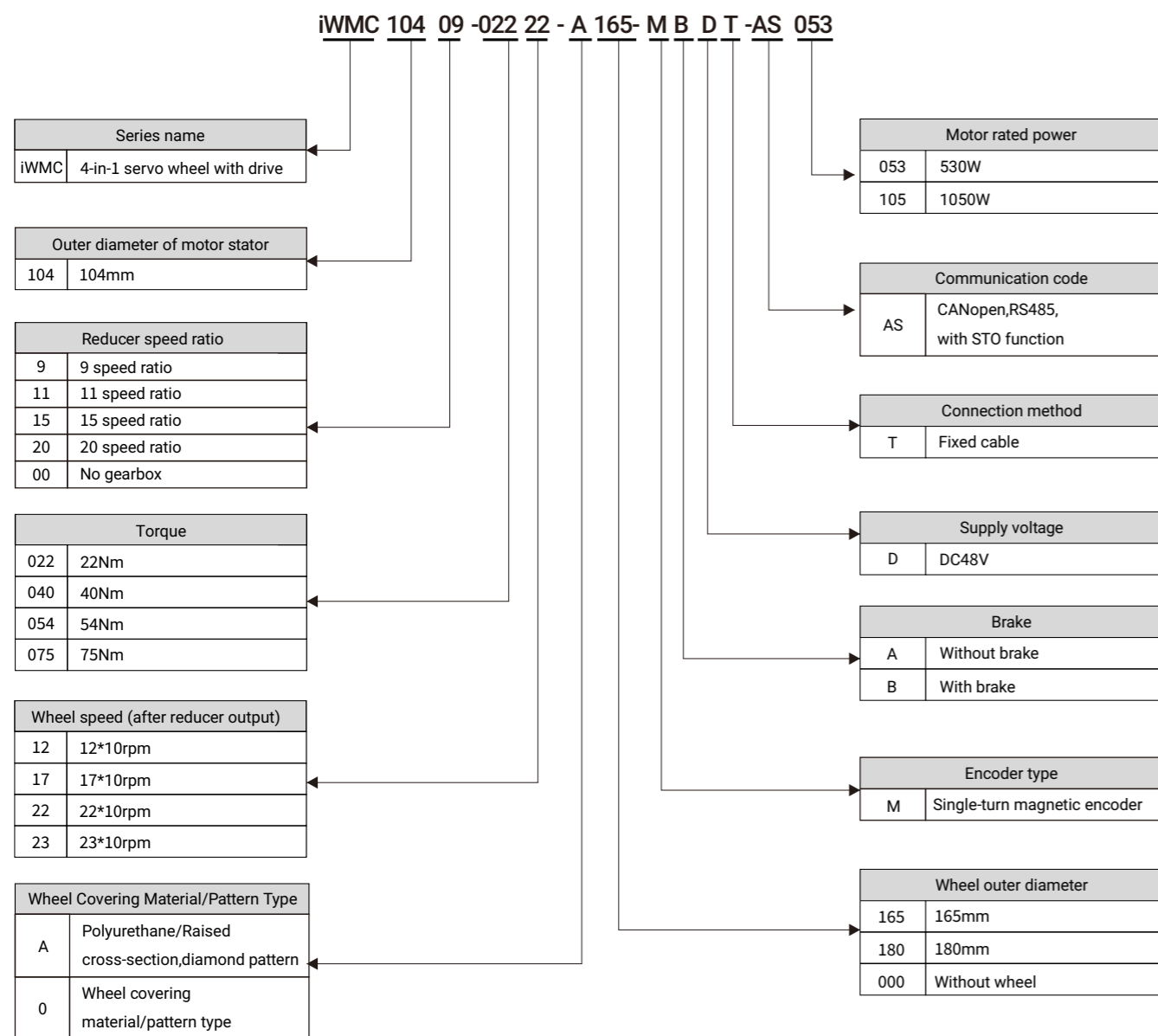


## ■ Naming rules



# iWMC Integrated Servo Wheel



- ☑ Drive dual power supply design
- ☑ Supports dual encoder signal output
- ☑ The reducer has low backlash and high precision
- ☑ Supports STO function
- ☑ Standard Canopen communication protocol

## Superiority

**Highly integrated:** The four main components of the driver, motor, reducer, and wheel are highly integrated, resulting in a compact structure that facilitates downsizing;

**High mounting accuracy:** Supported mounting, simple and convenient mounting method, high mounting accuracy, and high control accuracy;

**High reliability:** The integrated module, with only external power supply and communication cables, and it has good anti-interference performance and improves the stability and reliability of the entire vehicle system.

**Compatible design :** The communication and usage modes of the servo wheel products are consistent with Kinco's standard products, allowing seamless switching;

**Good maintainability:** A single supplier for the integrated product facilitates the maintenance of the product at a later stage and reduces supply chain and after-sale costs;

**Certification:** meet CE, UL, functional safety, etc.

## ■ Application Scenario



0.6T~2T  
Load varioustypes  
of mobile robots

## Kinco® Automation

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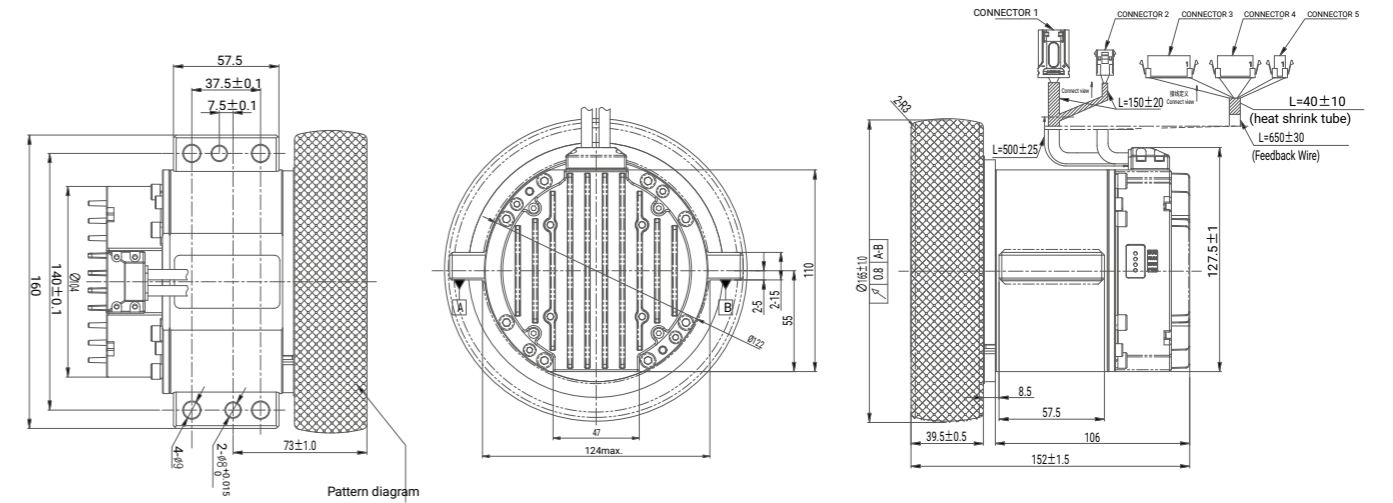
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## Product specification parameter

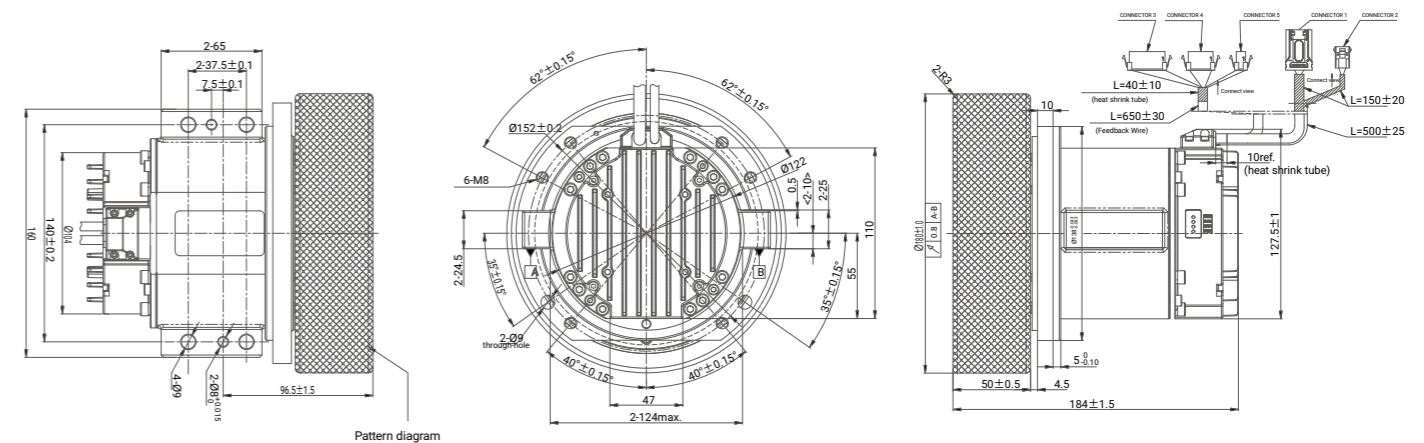
Model parameter	iWMC10409-02222 -A165-MBDT-AS053	iWMC10411-04023 -A180-MBDT-AS105	iWMC10415-05417 -A180-MBDT-AS105	iWMC10420-07512 -A180-MBDT-AS105	
Power(VDC)	Rated 48V(24V~60V)				
Logic power(VDC)	24V,1A				
Rated power Pn (W)	530	1050	1050	1050	
Rated torque Ts (Nm)	2.53	4	4	4	
Rated speed nN (rpm)	2000	2500	2500	2500	
Rated current In (Arms)	12.5	25	25	25	
Max current Im (Arms)	40	69	69	69	
Brake holding torque (Nm)	4	4	4	4	
Complete machine	Reduction ratio	9	11	15	20
	Rated torque Ts (Nm)	22	40	54	75
	Rated speed nN (rpm)	222	227	167	125
	Max torque Tm(Nm)	66	99	150	200
	Max speed (rpm)	290	263	193	145
	Max radial force N	3000	7000	7000	7000
	Max axial force N	1000	1500	1500	1500
Wheel	Wheel diameter (mm)	165	180	180	180
	Wheel width (mm)	39.5	50	50	50
	Rubber wheel material	Polyurethane (anti-static)	Polyurethane (anti-static)	Polyurethane (anti-static)	Polyurethane (anti-static)
Wheel hardness	85A±2	93A±2	93A±2	93A±2	
Energy consumption brake	External brake resistance	External brake resistance	External brake resistance	External brake resistance	
Dynamic braking voltage threshold	DC63±2V	DC63±2V	DC63±2V	DC63±2V	
Overvoltage alarm voltage	DC68±2V	DC68±2V	DC68±2V	DC68±2V	
Undervoltage alarm voltage	DC18±2V	DC18±2V	DC18±2V	DC18±2V	
Cooling mode	Natural cooling	Natural cooling	Natural cooling	Natural cooling	
Duty	S3,60% duty,10min	S3,40% duty,10min	S3,40% duty,10min	S3,40% duty,10min	
General function	Input specification	2 channel DI , Common COM1 terminal; High level :12.5V ~ 30VDC, Low level :0 ~ 5VDC; Maximum frequency :1 KHZ ,Input impedance: 5KΩ; Min turn-on voltage < 11 v, Max cut-off voltage >5V ,Max input voltage : 30V			
	Input function	Freely defined as required, the functions are as follows: drive enable, drive error reset, drive mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reverse, internal speed segment control, internal position segment control, emergency stop, start to find the origin, command activation, electronic gear ratio switching, gain switching			
	Output specification	1 channel digital output , open collector output, Max load current :100mA, Max control voltage : 30V			
	Output function	Freely defined according to needs, the functions are as follows: driver ready, driver error, motor position to, motor zero speed, motor lock brake, motor speed to, index Z signal appears, maximum limit speed in torque mode, motor lock shaft, motor limit medium, origin finding			
	Encoder output	Isolate output , 2 channel RS485 diferential encoders, output ABZ (one encoder output is used for drive ) 2500 lines Encoder 1 can be set through the software index address (23400F)			
	Brake	LOCK+ and LOCK- are only allow to forcibly release the brake when the drive is in the disabled state			
	STO	2-channel STO, STO interface can be connected with the safety controller, safety switch, safety sensor, etc., to realize the safety function of the driver.Input voltage range:24VDC±15%,Input current:2.3mA(Type),Logic level standard:IEC61131-2 Type1. Input resistance:10kOhm			
Bus function	Protect function	Overvoltage protection, undervoltage protection, motor overheat (i <sup>2</sup> T) protection, short circuit protection, drive overheat protection			
	Modbus/RS485	It supports a maximum 115.2Kbps baud rate and can communicate with the controller using the Modbus RTU			
Environment	CANopen	It supports a maximum 1Mbps baud rate and can communicate with the controller using the CANopen			
	Working temperature	0~40°C			
	Storage temperature	-20~ +65°C Short-term storage (Within one month) -10~ +55°C long term storage (More than 1 month)			
	Humidity	Less than 90%RH (no condensation)			
	Installation method	IP54			
Atmospheric	Altitude	67kpa~106kpa			
	Atmospheric	Less than 3000m,power derating 1.5%/100m between 1000m and 3000m			

## iWMC Integrated Servo Wheel Module Mechanical Dimensional Drawing

iWMC10409-02222-A165-MBDT-AS053 (Unit:mm)

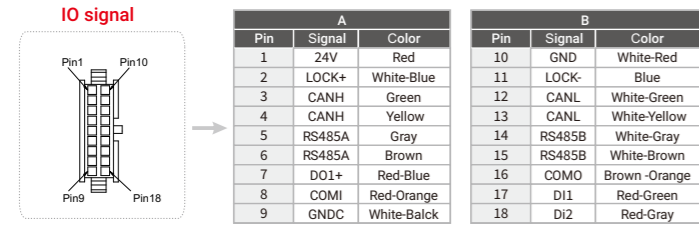


iWMC10411-04023-A180-MBDT-AS105 (Unit:mm)

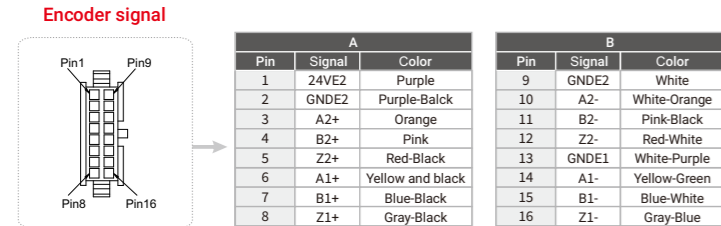




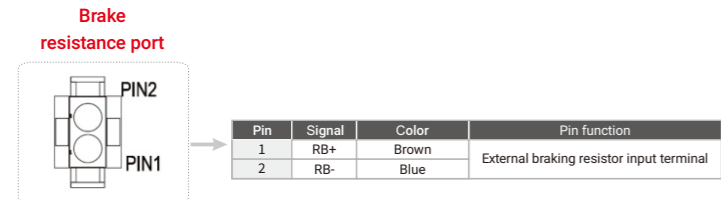
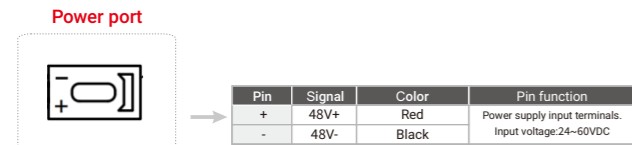
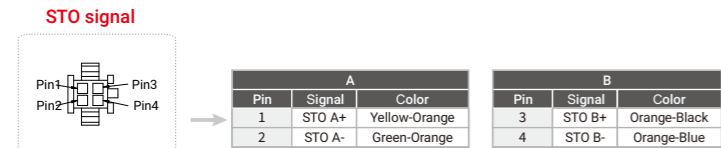
## Port Instructions



Pin	Signal	Pin function
1	24VS	24V DC power input, voltage range +18 ~ 30V, maximum input 1.5A
10	GNDS	24V DC power input reference ground
2	LOCK+	Force release brake interface , only for use when the drive is in disabled state
11	LOCK-	
3&4	CANH	Differential CAN signal
12&13	CANL	
5&6	RS485A	Data send/receive
14&15	RS485B	
7	DO1	Digital output 1 positive terminal
16	COMO	Digital output common terminal
8	COMI	Digital input common terminal
9	GND	CAN signal ground
17	DI1	Digital signal input (common anode connection / common cathode connection), Common COMI terminal; Input current: 4 ~ 20mA High level: 12.5 ~ 30VDC Low level: 0 ~ 5VDC Max frequency: 1KHz
18	DI2	



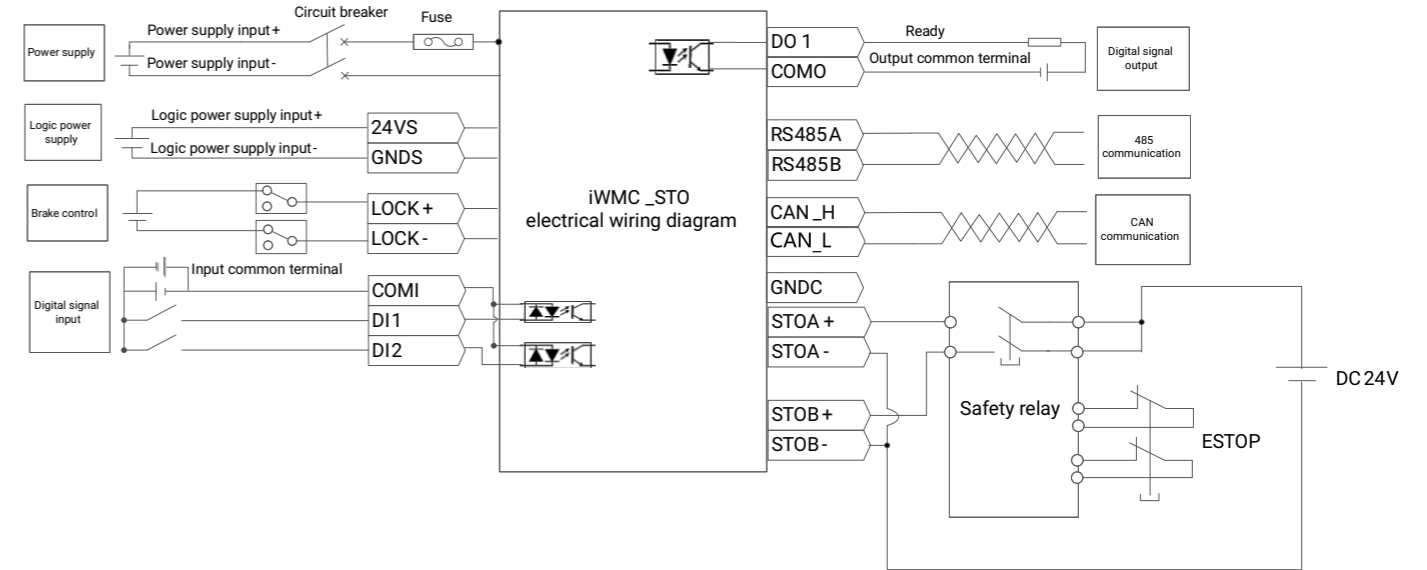
Pin	Signal	Pin function
1	24VE2	24V DC power input, voltage range 5 ~ 24V, maximum input 0.2A
2	GNDE2	24V DC power input reference ground
3	A2+	Encoder 2 differential output (+)
4	B2+	
5	Z2+	Encoder 1 differential output (+)
6	A1+	
7	B1+	Encoder 2 signal ground
8	Z1+	
9	GNDE2	Encoder 2 differential output (-)
10	A2-	
11	B2-	Encoder 1 signal ground
12	Z2-	
13	GNDE1	Encoder 1 differential output (-)
14	A1-	
15	B1-	
16	Z1-	



Note: Purchasable Kinco servo wheel external cable EXC-iWMC-AS-LL (available cable lengths: 0.65m, 1.3m, 3m)

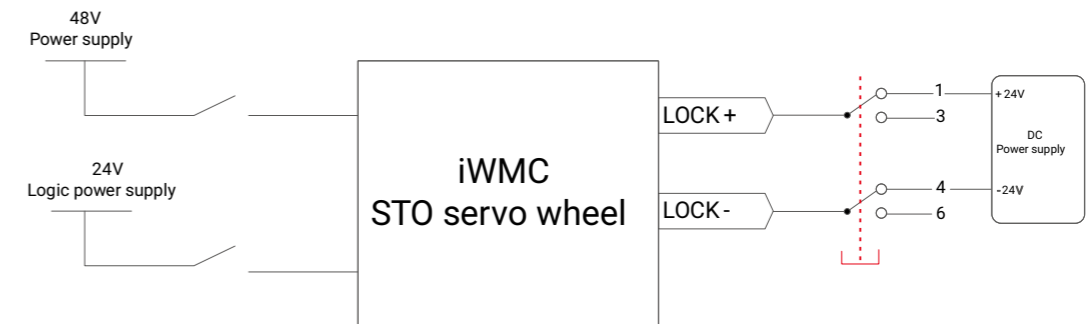
## Electrical wiring

When there is a lot of interference in field applications, twisted pair cables are recommended for control signals to reduce interference from interference sources to control signals.



Note: The safety relay is an external device illustration.

## Wiring diagram of recommended circuit for forced release of the brake



Note: Motor enable state prohibits external release the brake