

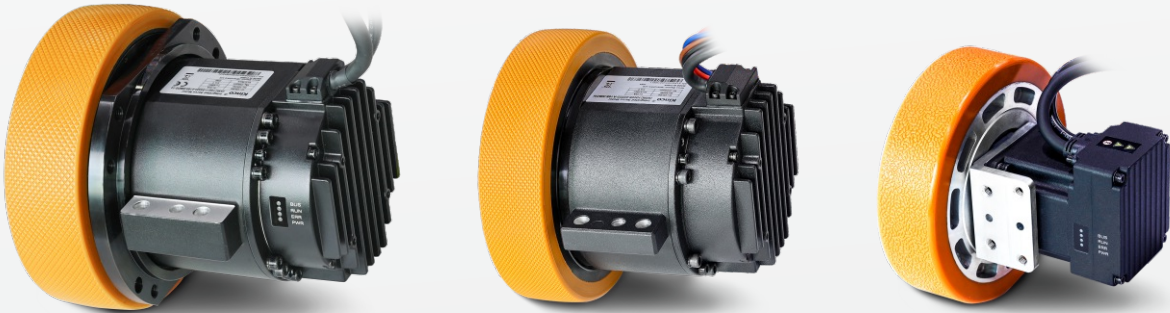
■ Naming Rule

iWMC10409-02222-A165-MBDT

①②③④⑤⑥⑦⑧⑨⑩⑪

①-Series name	iWMC:4-in-1 servo wheel with drive	⑤-Wheel speed (after reducer output)	12:12*10rpm 17:17*10rpm 22:22*10rpm 23:23*10rpm 30:30*10rpm 50:50*10rpm	⑧-Encoder type	M: Magnetolectric encoder
②-Motor stator outer diameter	056=56mm 057=57mm 104=104mm			⑨-Brake	A : Without brake B : With brake
③-Reducer speed ratio	06=6 speed ratio 09=9 speed ratio 10=10 speed ratio 11=11 speed ratio 15=15 speed ratio 20=20 speed ratio 00=No gearbox	⑥-Wheel covering material/pattern type	A: Polyurethane/Raise d crss-section,diamond pattern B: Rubber C: Other 0: Without wheel	⑩ -Supply voltage	D: DC48V
④-Torque:	004:3.6Nm 012:12Nm 022:22Nm 040:40Nm 054:54Nm 075:75Nm	⑦-Wheel outer diameter	130:130mm 150:150mm 165:165mm 180:180mm 000: Without wheel	⑪ -Connection type	T: Fixed cable

iWMC Integrated Servo Wheel



- ☒ Design of dual power supply for driver
- ☒ Support external forced unlocking
- ☒ Standard Canopen communication protocol
- ☒ The reducer has low back seam and high precision

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, is resistant to nickel-contacts and improves the stability and reliability of the entire system;

Compatible design & seamless switching: The communication and usage modes of the servo wheel products are no different from those of the standard Kinco 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.

■ Application Scenario



50kg~2T
Load varioustypes
of mobile robots

iWMC Integrated Servo Wheel Module Parameter Specifications

■ Product Parameters

iWMC Integrated Servo Wheel Model		iWMC05606-00450-A150-MDT-L iWMC05606-00450-A150-MDT-R	iWMC05606-00850-A150-MDT-L iWMC05606-00850-A150-MDT-R	iWMC05710-01230-A130-MDT	iWMC05710-01230-A150-MDT
Power Supply (VDC)		24VDC~60VDC			
Logic Supply (VDC)		24VDC			
Motor shaft output power (W)		200	400	400	400
Rated current In (Arms)		6	10	10	10
Rated RPM nN(rpm)		3000	3000	3000	3000
Rated Torque Tn(Nm)		0.64	1.27	1.27	1.27
Max currentIm (Arms)		18.2	33.9	32.1	32.1
Brake Holding Torque T(Nm)		2	2	2	2
Whole machine	Rated power (W)	190	379	379	379
	Rated Linear Speed (m/s)	3.9	3.9	2	2.3
	Max Linear Speed (m/s)	5.2	5.2	2.3	2.7
	Rated Torque Tn(Nm)	3.6	7.2	12	12
	Peak Torque Tn(Nm)	10.9	21.7	36.1	36.1
	Tire Diameter (mm)	150	150	130	150
	Tire Width (mm)	40	40	35	35
	Tire Material	Polyurethane	Polyurethane	Polyurethane	Polyurethane
	Tire Hardness Rating	73A	73A	85± 2A	85± 2A
	Max radial force N	1500	1500	2500	2500
	Max axial force N	280	280	500	500
Energy Consumption Braking		External braking resistor is required (depending on the operating conditions, mainly used for rapid starting and stopping)			
Energy Consumption Braking Voltage Absorption Point		None			
Overvoltage alarm point		DC68V ± 2V			
Undervoltage alarm point		DC18V ± 2V			
Input Specifications		iWMC05606 2 digital inputs , iWMC05710 4 digital inputs ;Common COMI terminal , High level: 12.5-30VDC , Low level: 0-5VDC ,Maximum frequency: 1KHz ,Input impedance: 5KΩ			
Output Specifications		1 digital output common COMO terminal, Maximum output current: 100mA			
Brake		Built-in brake and control circuit			
Forced Unlock Interface		1-way forced unlock interface, only for use when there is no power input to the servo wheel		No external forced release interface	
RS485 Debug Port		Maximum support for 115.2Kbps baud rate			
CAN BUS		Maximum support for 1Mbps baud rate, CANopen protocol can be used to communicate with the controller			
Noise		<65dB			
Cooling Methods		Natural cooling & Body-assisted cooling			
Operating Environment	Operating Temperature	-20~40°C			
	Storage Temperature	Short-term storage (within 1 month): -20~65°C;Long-term storage (within 1 month): -20~65°C"			
	Humidity (non-condensing)	90%RH below			
	Protection Level	IP54			
	Altitude	The rated working altitude is up to 1000m above sea level. For working altitudes above 1000m, a reduction of 1.5% is required for every 100 meters of rise in altitude, with a maximum working altitude of 3000 meters above sea level			
	Atmospheric Pressure	67kpa~106kpa			

Note: ■ = A : Without brake
B : With brake

iWMC Integrated Servo Wheel Module Parameter Specifications

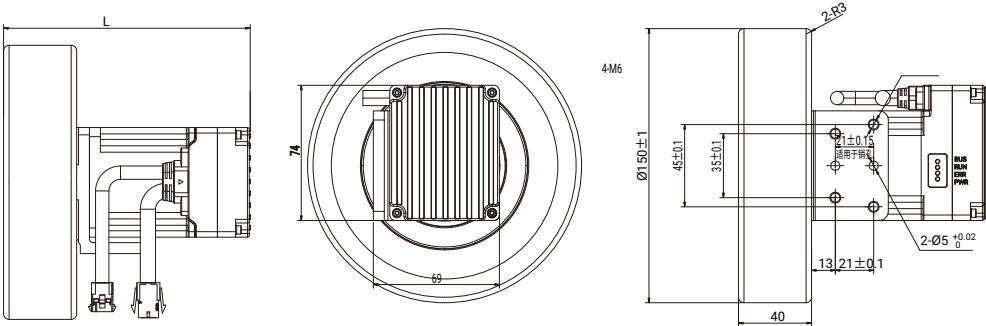
■ Product Parameters

iWMC Integrated Servo Wheel Model		iWMC10409-02222-A165-M■DT	iWMC10411-04023-A180-M■DT	iWMC10415-05417-A180-M■DT	iWMC10420-07512-A180-M■DT
Power Supply (VDC)		24V~60V			
Logic Supply (VDC)		24V,1A			
Motor shaft output power (W)		530	1050	1050	1150
Rated current In (Arms)		12.5	25	25	27.5
Rated RPM nN(rpm)		2000	2500	2500	2500
Rated Torque Tn(Nm)		2.53	4	4	4.4
Max currentIm (Arms)		40	69	69	69
Brake Holding Torque T(Nm)		4	4	4	4
Whole machine	Rated power (W)	500	950	950	980
	Rated Linear Speed (m/s)	1.9	2.14	1.57	1.57
	Max Linear Speed (m/s)	2.2	2.48	1.82	1.82
	Rated Torque Tn(Nm)	22	40	54	60
	Peak Torque Tn(Nm)	66	99	150	150
	Tire Diameter (mm)	165	180	180	180
	Tire Width (mm)	39.5	50	50	50
	Tire Material	Polyurethane	Polyurethane	Polyurethane	Polyurethane
	Tire Hardness Rating	85A	93A±2	93A±2	93A±2
	Max radial force N	3000	7000	7000	7000
	Max axial force N	1000	1500	1500	1500
Energy Consumption Braking		External braking resistor is required (depending on the operating conditions, mainly used for rapid starting and stopping)			
Energy Consumption Braking Voltage Absorption Point		DC63V ± 2V			
Overvoltage alarm point		DC68V ± 2V			
Undervoltage alarm point		DC18V ± 2V			
Input Specifications		2 digital inputs ,Common COMI terminal , High level: 12.5-30VDC ,Low level: 0-5VDC ,Maximum frequency: 1KHz , Input impedance: 5KΩ			
Output Specifications		1 digital output common COMO terminal, Maximum output current: 100mA			
Brake		Built-in brake and control circuit			
Forced Unlock Interface		1-way forced unlock interface, only for use when there is no power input to the servo wheel			
RS485 Debug Port		Maximum support for 115.2Kbps baud rate			
CAN BUS		Maximum support for 1Mbps baud rate, CANopen protocol can be used to communicate with the controller			
Noise		<65dB			
Cooling Methods		Natural cooling & Body-assisted cooling			
Operating Environment	Operating Temperature	-20~40°C			
	Storage Temperature	Short-term storage (within 1 month): -20~65°C, Long-term storage (within 1 month): -20~65°C			
	Humidity (non-condensing)	90%RH below			
	Protection Level	IP54			
	Altitude	The rated working altitude is up to 1000m above sea level. For working altitudes above 1000m, a reduction of 1.5% is required for every 100 meters of rise in altitude, with a maximum working altitude of 3000 meters above sea level			
	Atmospheric Pressure	67kpa~106kpa			

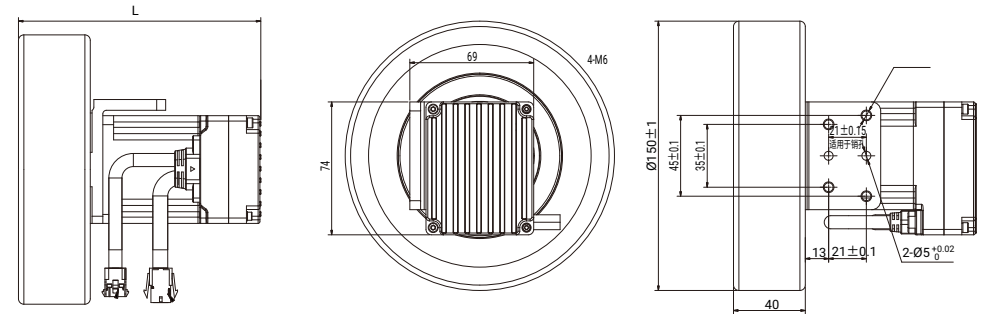
Note: ■ = A : Without brake
B : With brake

iWMC Integrated Servo Wheel Module Mechanical Dimensional Drawing

■ iWMC05606-00450-A150-M■DT-L
iWMC05606-00850-A150-M■DT-L



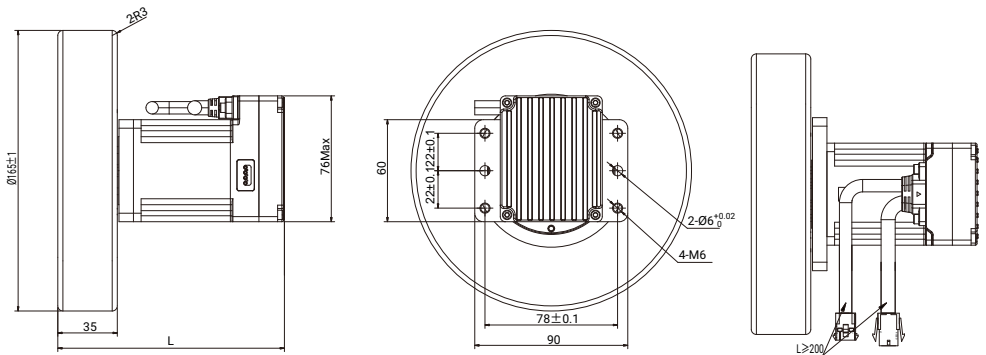
■ iWMC05606-00450-A150-M■DT-R
iWMC05606-00850-A150-M■DT-R



Model	With bake	The length of the whole machine L (mm)
iWMC05606-00450-A150-MADT-L		135±1.5
iWMC05606-00450-A150-MADT-R		
iWMC05606-00450-A150-MBDT-L	✓	174.5±1.5
iWMC05606-00450-A150-MBDT-R		
iWMC05606-00850-A150-MADT-L		153±1.5
iWMC05606-00850-A150-MADT-R		
iWMC05606-00850-A150-MBDT-L	✓	192.5±1.5
iWMC05606-00850-A150-MBDT-R		

Note: - L and - R represent the output schemes of servo wheel motors, with no difference in performance

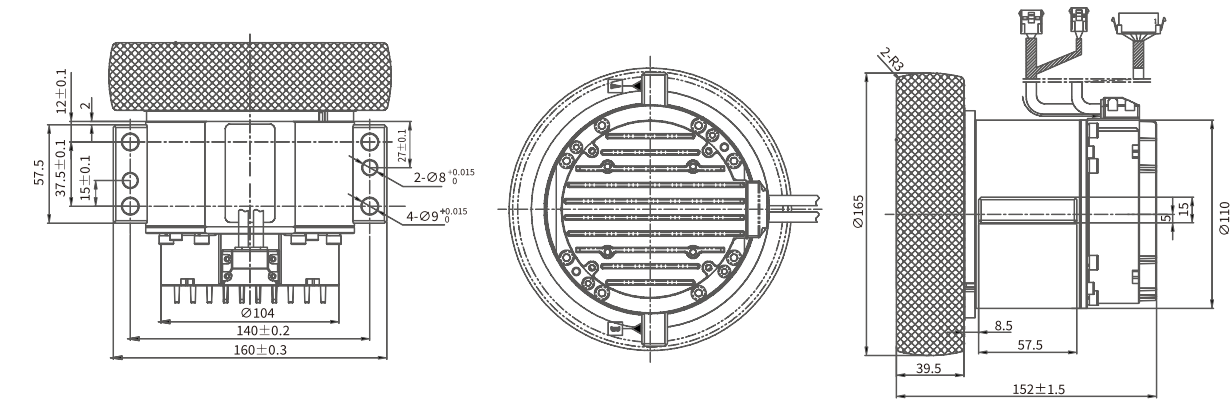
■ iWMC05710



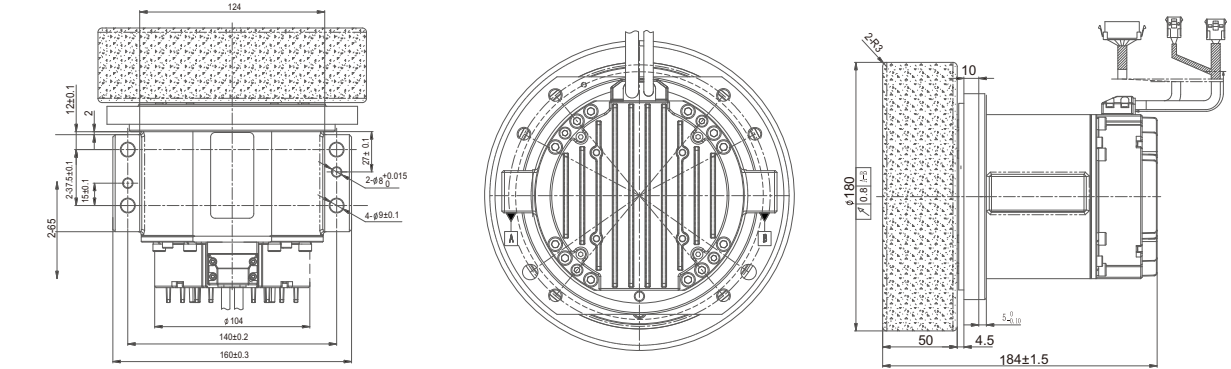
Model	With bake	The length of the whole machine L (mm)
iWMC05710-01230-A130-MADT		133.3
iWMC05710-01230-A150-MADT		
iWMC05710-01230-A130-MBDT	✓	172.8
iWMC05710-01230-A150-MBDT		

iWMC Integrated Servo Wheel Module Mechanical Dimensional Drawing

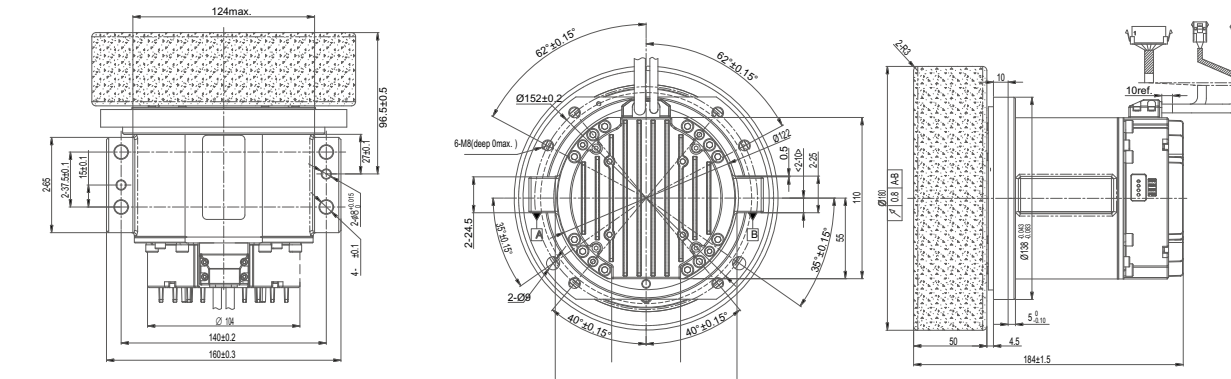
■ iWMC10409-02222-A165-M■DT



■ iWMC10411-04023-A180-M■DT

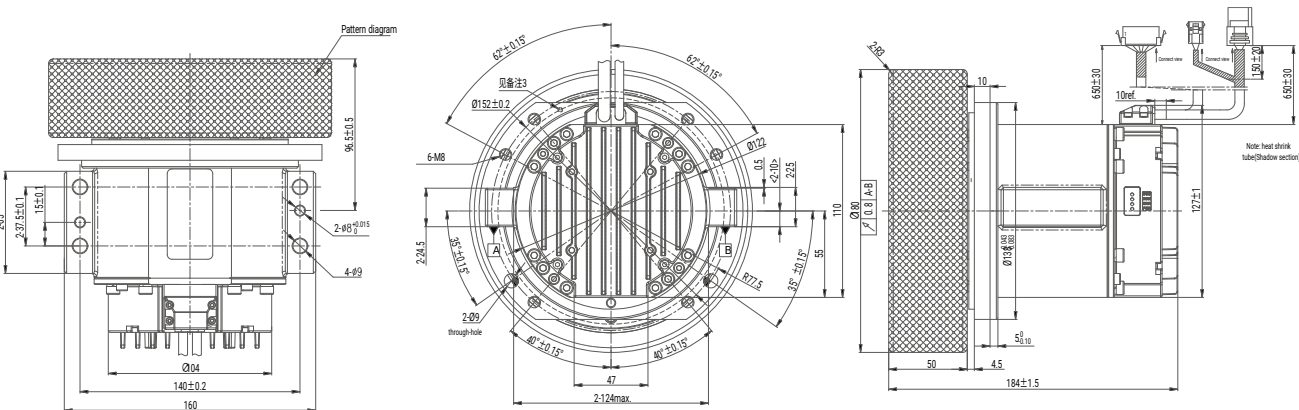


■ iWMC10415-05417-A180-M■DT

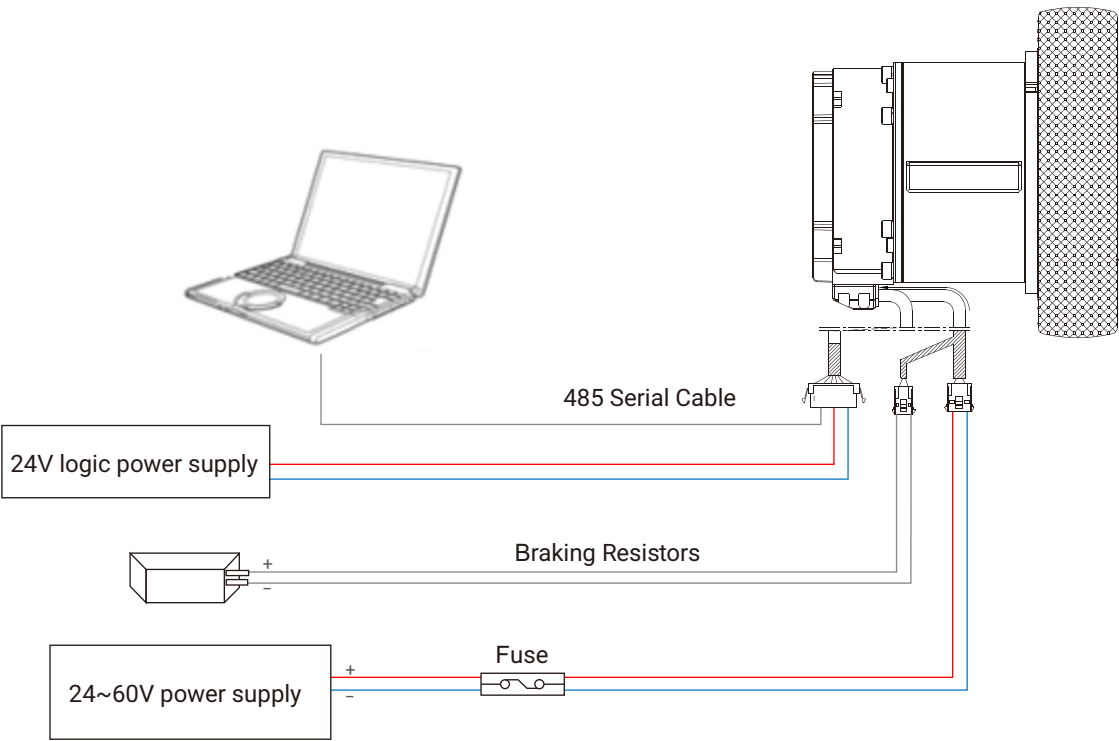


iWMC Integrated Servo Wheel Module Mechanical Dimensional Drawing

iWMC10420-07512-A180-M DT



External Wiring Diagram



iWMC Integrated Servo Wheel Module Wiring Port Instructions

Terminal definition

PIN	Signal	PIN	Signal
1	24V	10	GND
2	LOCK+	11	LOCK-
3	CANH	12	CANL
4	CANH	13	CANL
5	485A	14	485B
6	485A	15	485B
7	OUT1+	16	COMO
8	COMI	17	DI1
9	None	18	DI2

Note: 1. Only applicable to iWMC05606, iWMC104 series
2. Pin 9: iWMC05606 signal is GNDC, iWMC104 series signal is empty.

Power port

Pin number	Pin name	Pin function
3	DC-	The input end of the power supply of the driver must be connected. Input voltage: 24~60VDC
1	DC+	

Note: Marking interface applicable to iWMC10420-07512-A180-M DT (PIN1 DC+ ; PIN2 DC-)

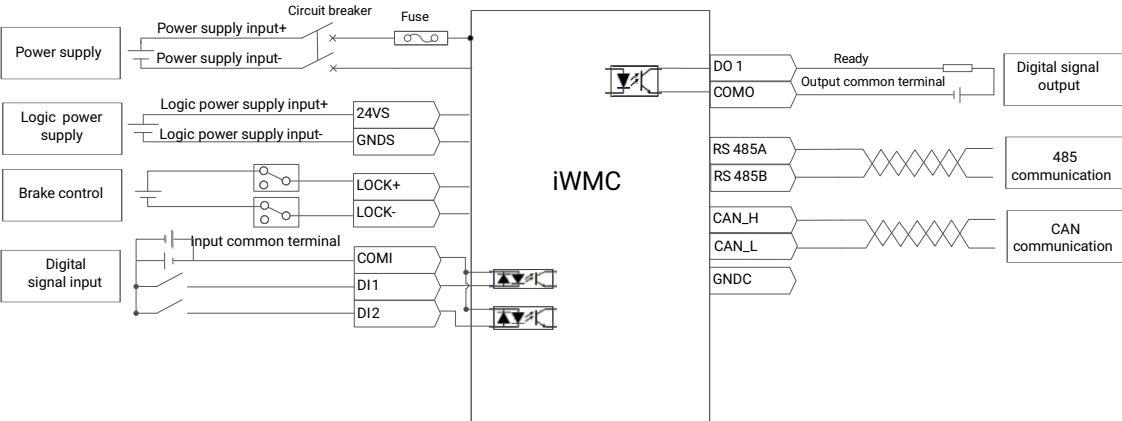
Brake resistance port

Pin number	Pin name	Pin function
1	RB+	External braking resistor input terminal
2	RB-	

Note: iWMC05606 and iWMC05710 do not have this port

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.



Wiring Diagram of Recommended Circuit for Forced Unlocking Brake

