

ROBOT ARM TECHNICAL SPECIFICATION



>> FR3 SERIES <<																
FR3			FR3-WMS		FR3-WML		FR5		FR10		FR16		FR20		FR30	
Payload	3kg(Max:5kg)		3kg		3kg		5kg (Max:7kg)		10kg (Max:14kg)		16kg (Max:20kg)		20kg (Max:25kg)		30kg (Max:35kg)	
Reach	622mm		622mm		922mm		922mm		1400mm		1034mm		1854 mm		1403 mm	
Degrees of freedom	6 rotating joints		6 rotating joints		6 rotating joints		6 rotating joints		6 rotating joints		6 rotating joints		6 rotating joints		6 rotating joints	
HMI	10.1 inch teach pendant or mobile terminal Web App		10.1 inch teach pendant or mobile terminal Web App						10.1 inch teach pendant or mobile terminal Web App				10.1 inch teach pendant or mobile terminal Web App			
Dual arm robotics applications	Mirror versions available to build dual arm robots															
Pose repeatability per ISO 9283	±0.02mm		±0.02mm		±0.05mm		±0.02mm		±0.05mm		±0.03mm		±0.1 mm		±0.1 mm	
Axis movement	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed
Base	±175°	±180°/s	±175°	±150°/s	±175°	±150°/s	±175°	±180°/s	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s
Shoulder	+ 85°/ - 265° <small>(Dual Arm: - 85°/ + 265°)</small>	±180°/s	+ 85°/ - 265°	±150°/s	+ 85°/ - 265°	±150°/s	+ 85°/ - 265°	±180°/s	+ 85°/ - 265°	±120°/s	+ 85°/ - 265°	±120°/s	+ 85°/ - 265°	±120°/s	+ 85°/ - 265°	±120°/s
Elbow	±150°	±180°/s	±150°	±150°/s	±150°	±150°/s	±160°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±120°/s	±160°	±120°/s
Wrist 1	+ 85°/ - 265° <small>(Dual Arm: - 85°/ + 265°)</small>	±180°/s	+ 85°/ - 265°	±180°/s	+ 85°/ - 265°	±180°/s	+ 85°/ - 265°	±180°/s	+ 85°/ - 265°	±180°/s	+ 85°/ - 265°	±180°/s	+ 85°/ - 265°	±180°/s	+ 85°/ - 265°	±180°/s
Wrist 2	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s
Wrist 3	±175°	±180°/s	±360°	±180°/s	±360°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s
Typical TCP speed	1m/s		1m/s		1m/s		1m/s		1.5m/s		1m/s		2m/s		2m/s	
IP classification	IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54 (IP65 Optional)	
Noise	<65dB		<65dB		<65dB		<65dB		<65dB		<65dB		<70dB		<70dB	
Robot mounting	Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		Any orientation	
I/O Ports	(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2	
	(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1	
Tool I/O power supply	24V/1.5A		24V/1.5A		24V/1.5A		24V/1.5A		24V/1.5A		24V/ 1.5 A		24V/ 1.5 A		24V/ 1.5 A	
Footprint	128mm		128mm		128mm		149mm		190mm		190mm		240mm		240mm	
Weight	≈15kg		≈10.5kg		≈11.25kg		≈22kg		≈40kg		≈40kg		≈85 kg		≈85 kg	
Operating temperature	0-45 °C		0-45 °C		0-45 °C		0-45 °C		0-45 °C		0-45 °C		0-45 °C		0-45 °C	
Operating humidity	90%RH(non-condensing)		90%RH(non-condensing)		90%RH(non-condensing)		90%RH(non-condensing)		90%RH(non-condensing)		90%RH(non-condensing)		90%RH(non-condensing)		90%RH(non-condensing)	
Materials	Aluminium, Steel		Aluminium, Steel		Aluminium, Steel		Aluminium, Steel		Aluminium, Steel		Aluminium, Steel		Aluminium, Steel		Aluminium, Steel	
Black Optional	no		no		no		yes		yes		no		no		no	
Typical power test payload settings, different loads are set according to robot models, payload configuration parameters are as follows :																
	FR3 payload setting: 3kg, Z-axis: 18mm		FR3WMS payload setting: 3kg, Z-axis: 18mm		FR3WML payload setting: 3kg, Z-axis: 18mm		FR5 payload setting: 5kg, Z-axis: 30mm		FR10 payload setting: 10kg, Z-axis: 60		FR16 payload setting: 16kg, Z-axis: 96mm		FR20 payload setting: 20kg, Z-axis: 120mm		FR30 payload setting: 30kg, Z-axis: 200mm	
Select aging test program, connect robot's total power to power meter, set robot to automatic mode, set global speed to 100, click run, if there are no abnormalities after running two cycles, start continuous testing for 24 hours. After 24 hours, respectively, record the peak and average power of the power meter, and then statistically analyze each model :																
Typical average power	220W		90W		140W		260W		300W		310W		620W		600W	
Typical peak power	280W		130W		240W		310W		500W		410W		810W		910W	