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INTELLIGENT HUMAN-ROBOT COOPERATION SYSTEM SOLUTIONS

TELESTAR SRL Sede Legale e Operativa: Via Novara, 35 - 28010 Vaprio d'Agogna (NO) Tel. (+39) 0321966768 - Web www.telestar-automation.it

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FAIRINO Catalogo Prodotti 2026

FR3WMS FR3WML FR3C FR3 FR5 FR10 FR16 FR20 FR30

ROBOT ARM TECHNICAL SPECIFICATION

>> FR3 SERIES <<

	FR3	FR3-C	FR3-WMS	FR3-WML	FR5	FR10	FR16	FR20	FR30
Payload	3kg(Max:5kg)	3kg (peak:5kg)	3kg	3kg	5kg(Max:7kg)	10kg (Max:14kg)	16kg (Max:20kg)	20kg(Max:25kg)	30kg(Max:35kg)
Reach	622mm	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	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	±0.05mm	±0.02mm	±0.05mm	±0.02mm	±0.05mm	±0.03mm	±0.1mm	±0.1mm

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	Working range	Maximum speed
Base	±175°	±180°/s	±175°	±150°/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° (Dual Arm: -85°/ +265°)	±180°/s	+ 85°/ - 265°	±150°/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	±150°	±150°/s	±160°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±120°/s	±160°	±120°/s
Wrist 1	+85°/ - 265° (Dual Arm: -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	+ 85° /- 265°	±180°/s	+ 85° / - 265°	±180°/s
Wrist 2	±175°	±180°/s	0°~355°	±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	±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		1m/s		1.5m/s		1m/s		2m/s		2m/s	
IP classification	IP54 (IP65 Optional)		IP54		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		<65dB		<70dB		<70dB	
Robot mounting	Any orientation		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		(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		(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/1.5A		24V/ 1.5A		24V/ 1.5A		24V/ 1.5A	

Footprint	128mm	125mm	128mm	128mm	149mm	190mm	190mm	240mm	240mm
Weight	≈15kg	≈10kg	≈10.5kg	≈11.25kg	≈22kg	≈40kg	≈40kg	≈85kg	≈85kg
Operating temperature	0-45 ℃	0-45℃	0-45℃	0-45℃	0-45 ℃	0-45 ℃	0-45℃	0-45℃	0-45 ℃
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)	90%RH(non-condensing)
Materials	Aluminium 、Steel	Aluminium 、Steel	Aluminium 、Steel	Aluminium 、Steel	Aluminium 、Steel	Aluminium 、Steel	Aluminium 、Steel	Aluminium 、Steel	Aluminium 、Steel
Black Optional	no	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	FR3C 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	200W	90W	140W	260W	300W	310W	620W	600W
Typical peak power	280W	230W	130W	240W	310W	500W	410W	810W	910W

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ROBOT ARM TECHNICAL SPECIFICATION

CONTROLLER TECHNICAL SPECIFICATIONS

DC MINI Controller 2kW

DC Controller 5kW

Features		
IP classification	IP54	IP54
Operating temperature	0-45℃	0-45℃
Operating humidity	90%RH(non-condensing)	90%RH(non-condensing)
I/O Ports	(DI) 16 (DO) 16	(DI) 16 (DO) 16
	(AI) 2 (AO) 2	(AI) 2 (AO) 2
	High speed pulse input 2	High speed pulse input 2
I/O power supply	24V/1.5A	24V/1.5A
Standard communication	I/O、TCP/IP、Modbus_TCP/RTU	I/O、TCP/IP、Modbus_TCP/RTU
Optional communication	CC-Link IE Field Basic、Profinet、Ethernet/IP、EtherCAT	CC-Link IE Field Basic、Profinet、Ethernet/IP、EtherCAT
Communication Board Optional Configuration	MiniPCI Express - real-time Ethernet PC Board	MiniPCI Express - real-time Ethernet PC Board
Software development kit	C#/C++/Python/ROS/ROS2	C#/C++/Python/ROS/ROS2
Physical		
L*W*H	245*180*44.5mm (No protrusions)	245*180*89 mm (No protrusions)
Weight	2.1kg (Weight without wire)	2.957kg (Weight without wire)
Materials	Galvanized plate	Galvanized plate
Power supply	30-60VDC	30-60VDC
Output power	48VDC / 42Amax	48VDC / 104Amax
Applicable Robot	FR3,FR3-WMS,FR3-WML,FR5,FR10,FR16	FR20/FR30

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CONTROLLER TECHNICAL SPECIFICATIONS

AC MINI Controller 2kW

AC Controller 5kW

IP54	IP54	
0-45℃	0-45℃	
90%RH(non-condensing)	90%RH(non-condensing)	
(DI) 16 (DO) 16	(DI) 16 (DO) 16	
(AI) 2 (AO) 2	(AI) 2 (AO) 2	
High speed pulse input 2	High speed pulse input 2	
24V/1.5A	24V/1.5A	
I/O、TCP/IP、Modbus_TCP/RTU	I/O、TCP/IP、Modbus_TCP/RTU	
CC-Link IE Field Basic、Profinet、Ethernet/IP、EtherCAT	CC-Link IE Field Basic、Profinet、Ethernet/IP、EtherCAT	
MiniPCI Express - real-time Ethernet PC Board	MiniPCI Express - real-time Ethernet PC Board	
C#/C++/Python/ROS/ROS2	C#/C++/Python/ROS/ROS2	
245*180*44.5mm (No protrusions)	245*180*89mm (No protrusions)	
2.5kg (Weight without wire)	3.6kg (Weight without wire)	
Galvanized plate	Galvanized plate	
100-240VAC / 10A / Single-phase / 50-60Hz	100-240VAC / 16A / Single-phase / 50-60Hz	
48VDC / 42Amax	48VDC / 104Amax	
FR3,FR3-WMS,FR3-WML,FR5,FR10,FR16	FR20/FR30	

Safety Box

IP Classification	IP54
Button Function	Manual/Auto, Drag, Point Record, Match or Not with Safety Button Box, Start/Stop, Shutdown
Communication	TCP/IP
Network transfer rate	100M
Power over ethernet	Standard POE
L*W*H	136*60*66mm (No protrusions)
Weight	490g (Cable weight included)
Materials	ABS
Cable length	5m
Number of keys	≥20W

Human-cobot interaction tools for basic interaction functions. It can be linked with computers, tablets and other devices through the RJ45 interface, and directly log in to the Web App teaching interface.

Teach Pendant (optional)

IP Classification	IP54
Operating humidity	90%RH(non-condensing)
Display resolution	1280 x 800 pixels
L*W*H	268*210*88mm
Weight	1,6 Kg
Materials	ABS PP
Cable length	5m

The teach pendant, computer, tablet or mobile phone is connected to the WebAPP system to realize the operation of the collaborative robot.

INDUSTRY

Abundant welding process kits, with a variety of welding technologies, seam welding, straight welding, oscillating welding, arc welding, and multi-layer multi-pass welding. It also incorporates intelligent welding technologies for wire positioning and weld seam tracking, significantly enhancing welding efficiency and ensuring welding quality.

In modern enterprises, palletizing work is very common. handling, many companies have introduced robotic palletizing systems to automate this task.

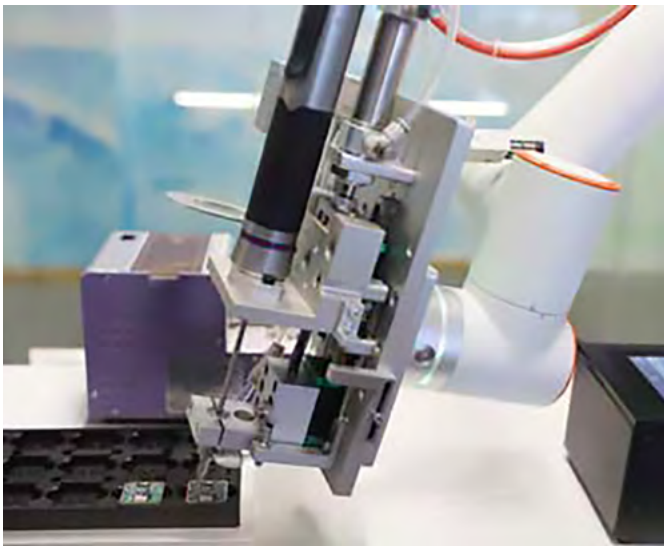
Collaborative robots can p**erform round-the-clock automated palletzing work**, effortlessly and quickly transporting goods to their destinations, saving time and energy.

This **frees employees from fatigue and repetitive tasks,** allowing them to engage in more meaningful work. Additionally, there is no need for safety barriers, enabling true human-robot collaboration.

The platform utilizes a six-axis collaborative robot to accomplishes palletizing work, offering easy deployment and quick utilization, truly enabling a plug-and-play experience.

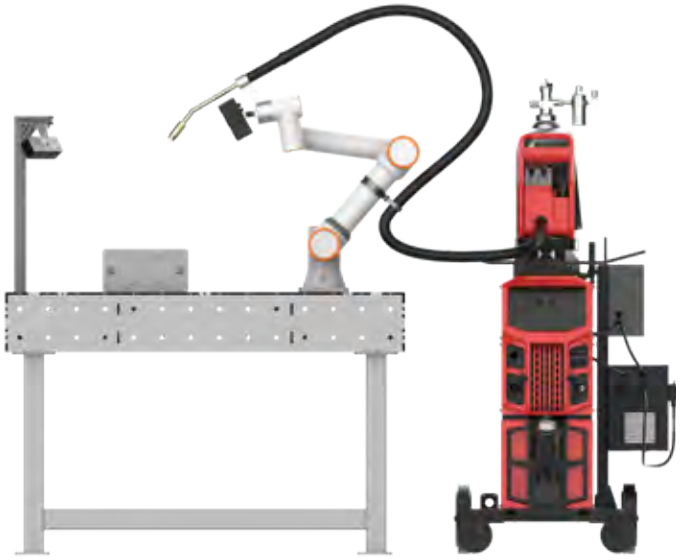
Palletizing Solution

Screw Tightening Solution



Combined with the end intelligent tightening device at the end, it achieves adjustable, controllable, and programmable torque, making it suitable for screw tightening in various scenarios. It can stably, efficientl and accurately complete the production process, greatly reducing repetitive labor for workers and supporting data traceability.

- Safe and convenient
- Flexible deployment
- Flexible force control
- High efficiency in production



3D Vision programming free Welding Solution integrates FAIRINO robot AIRLab and 3D Camera, equipped with a comprehensive welding process package. By leveraging 3D camera scannig and point cloud algorithms for workpiece positioning and weld seam recognition, it utilizes AI deep learning for dynamic path planning and welding process matching, enabling intelligent welding.

3D Vision Programming-free Welding solution

COMMERCIAL

Rehabilitation Solution

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Ultimate safety
Open platform
Data traceability
Reduced entry barriers

Moxibustion Solution

It fully replicates the five major moxibustion techniques, offering hovring moxibustion, sparrow pecking moxibustion, rotating moxibustion, reciprocating moxibustion and meridian moxibustion, thus reducing the barrier to entry for moxibustion.

With the latest certifications, it is equipped with end collision detection, temperature control and infrared distance measurement, providing triple protection to ensure the safety of moxibustion. It also has a built-in suction device to prevent inhalation of smoke and dust during the moxibustion process.

- Ultimate safety
- Flexible deployment
- Efficient moxibustion
- Lower barrier to entry

Collaborative robots can be applied in various types of new retail scenarios and can be customized according to different scenario requirements.

Benefits include:

- **Cost-saving**: They replace manual labor, reducing manpower costs while increasing work effiency
- **Entertainment value**: They ensure constistent taste regardless of different operators or different time points, eliminating variations caused by human factors.
- **Entertainment value**: The robotic performance brings enjoyment to consumers,while employees can focus on more fulfilling and higher-paying jobs.
- **Cost-effective**: they have low costs and provide a quick return on investment, resulting in good economic benefits.
- **Small footprint**: They occupy less space, resulting in higher space utilization and adaptability to various innovative business models.

Automated Tea Solution