FAIRINO

# FR3-WMS

## New Generation Flexible Collaborative Robot

FAIRINO FR3-WMS is a lightweight collaborative robot specifically designed for flexible production and complex welding scenarios, weighing only 10.5 kg, supporting fast handling and deployment, and combining flexibility, durability, and ease of use. Its 360° omnidirectional rotating 6th axis and IP65(optional ) protection rating enable it to handle multi- dimensional operational requirements and harsh industrial environments.



**3kg**
Payload

**622mm**
Reach

**±0.02mm**
Repeatability

## Feature Advantages

### Safe Human-robot Collaboration Design

Built-in high-precision collision detection system enables close-range collaborative operation with workers without the need for additional protective fencing

### Industrial-grade protection

Protection level IP54 (optional IP65), capable of handling complex industrial scenarios

### Minimalist operation experience

Supports drag-and-drop teaching and graphical programming, allowing workers with no prior experience to complete trajectory setting through intuitive operations

### Ultra-light weight and high mobility

Can be easily carried and deployed by a single person, meeting the requirements of rapid switching in flexible production lines;360° Flexible Operation: The 6th axis supports ± 360°working range without dead angles, enabling precise access to workpieces from any angle for flexible operation

## Application Area

Suitable for complex curved surface welding and precision component machining in industries such as automotive manufacturing, metal processing, and steel structure, especially suitable for workpiece processing with multi-angle operation requirements.


## Contact Us

**Address :** No.209 Zhuyuan Road, Suzhou New District , Jiangsu Province, China
**Tel:**+86 400-811-0929
**Email:**sales@fairino.com


Official Website | Youtube | Linkedin | Download

# FR3-WMS Technical Specification

| Parameter Type | Parameter | |
|---|---|---|
| Payload | 3kg | |
| Reach | 622mm | |
| Degrees of freedom | 6 rotating joints | |
| HMI | 10.1 inch teach pendant (Optional)or mobile terminal Web App | |
| Pose repeatability per ISO 9283 | ±0.02mm | |
| Axis movement | Working range | Maximum speed |
| Base | ±175° | ±150°/s |
| Shoulder | +85°/-265° | ±150°/s |
| Elbow | ±150° | ±150°/s |
| Wrist 1 | +85°/-265° | ±180°/s |
| Wrist 2 | ±175° | ±180°/s |
| Wrist 3 | ±360° | ±180°/s |
| Typical TCP speed | 1m/s | |
| IP lassification | IP54 (IP65 Optional) | |
| Noise | <65dB | |

| Parameter Type | Parameter |
|---|---|
| Robot mounting | Any orientation |
| I/O Ports | (DI) 2 (DO) 2 |
| | (AI) 1 (AO) 1 |
| Tool I/O power supply | 24V/1.5A |
| Footprint | 128mm |
| Weight | ≈10.5kg |
| Operating temperature | 0-45°C |
| Operating humidity | 90%RH(non-condensing) |
| Materials | Aluminium 、 Steel |
| Black Optional | no |
| ■ Typical power test payload settings, different loads are set according to robot models, payload configuration parameters are as follows : | |
| FR3-WMS payload setting: 3kg, Z-axis: 18mm | |
| 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 | 90W |
| Typical peak power | 130W |

# FR3-WMS Controller Specification



DC MINI Controller



AC MINI Controller 2kw

## Features

| | | |
|---|---|---|
| IP classification | IP54 | IP54 |
| Operating temperature | 0-45°C | 0-45°C |
| 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 | TCP/IP 、I/O 、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*44.5 mm (No protrusions) | 245*180*44.5mm (No protrusions) |
| Weight | 2.044 kg (Weight without wire) | 2.5kg (Weight without wire) |
| Materials | Galvanized plate | Galvanized plate |
| Power supply | 30-60VDC | 100-240VAC/10A/Single-phase/50-60Hz |
| Output power | 48VDC / 104Amax | 48VDC / 42Amax |