

Technical Specifications of ART7 Robotic Manipulator

Project	Basic Specifications
Rated Payload (Single Arm)	7kg
Reach	714mm
Degrees of Freedom (Single-arm)	7 rotational degrees of freedom
Repeatability	±0.03mm
Working Range	J1: ±175°
	J2: ±112°
	J3: ±175°
	J4: -87°, +112°
	J5: ±175°
	J6: ±72°
Brake	J7: ±90°
	Full-joint brake
Typical TCP Speed	1.2m/s
Joint velocity	Not less than 150°/s
Wrist Configuration	crossed wrists
Noise Level	<65dB
Installation Direction	any direction
Operating Temperature	0~45°C
Operating Humidity	90%RH (no condensation)
Equipment Storage	-20~60°C
Power Input	DC48V
Input Voltage (Single-arm)	42-55V
Input Current (Single-arm)	11A
Peak Power (Single-arm)	528W

Optional Configuration

Configuration 1

Single arm
(left/right arm)



Configuration 2

Single arm (left/right arm)
+ control box



Configuration 3

Dual-arm



Configuration 4

Dual-arm + Control Box
+ Splitter



Specification Sheet for ART7 Robotic Arm Control Box

Classification	Project	Basic Specifications
Processor (Rockchip RK3588)	CPU Model	4 Cortex-A76 processors + 4 Cortex-A55 processors
	CPU clock speed	2.4 GHz
	NPU/GPU	Supports:NPU 6TOPS / GPU Mali-G610
Memory	RAM capacity	8GB LPDDR4X
IO Interface	Type-C1	Programming port supports USB 3.0
	Type-C2	The display port can be converted to HDMI, supporting USB 3.0
storage	eMMC	32GB eMMC
Ethernet	Network Interface (10/100/1000BASE-T)	2x Gigabit Ethernet ports (1x TSN network) +1x EtherCAT interface
Serial input	CAN	Support
Power Supply	Input Voltage	DC24V
	Input Current	2A
Environment	Operating Humidity	95% @ 55°C (no condensation)
	Operating Temperature	-10 ~ +55 °C
Mechanical property	Three-dimensional dimensions	40 × 80 × 100 mm
	Weight	0.37 kg
Operating system	operating system	Linux-based operating system

Application Advantages



Standard rail clips enable simple and fast deployment

The control box is designed with integrated rail clips, which can be directly clipped onto standard rails without additional tools or modification. The installation process is simple and reliable, significantly reducing integration and maintenance costs.

Low power consumption and easy integration, enabling smooth deployment even in narrow spaces

The entire device features a compact form factor, low power consumption, and excellent heat dissipation. It is particularly suitable for integration into space-constrained scenarios such as enclosed cabinets, narrow workshops, or mobile platforms, truly embodying the concept of "small size, great capability".

Fully supports the open-source ROS2 framework, and provides a complete SDK and secondary development interfaces

- Full force control topic output: All joint torques, collision detection, and impedance control are published via standard ROS2 topics without the need for secondary encapsulation
- Supports Humble + Ubuntu 22.04 Out Of The Box, with C++ examples provided
- Complete URDF, in-depth adaptation to MoveIt2, supporting multi-arm synchronous ROS2 nodes
- All advanced control interfaces are fully opened: force-position hybrid control, impedance control, compliant grinding, collision detection, drag teaching, load identification, and safety monitoring are all exposed as ROS2 services
- EtherCAT underlying real-time synchronization, with extremely low latency and industrial-grade stability

EtherCAT Branch



Project	Basic Specifications
Size	88 × 22 × 101mm
Installation Method	Support Rail Mounting
Bus protocol	EtherCAT Industrial Real-time Bus Protocol
Bus interface	6 × RJ45 (1 in, 5 out)

Contact Us

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Full-Chain Supply from Joint Modules to Complete Robot Reference Designs

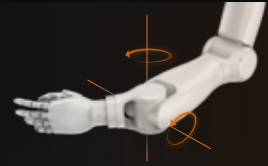
Tier-1 Supplier of Full-stack Humanoid Robot Solutions



ART7 Core Highlights

7-degree-of-freedom flexible movement

- Adopts a 7-axis design and a cross wrist configuration
- Significantly enhance the precision of teleoperation and adaptability to complex scenarios
- Excellent mobility and obstacle avoidance capability



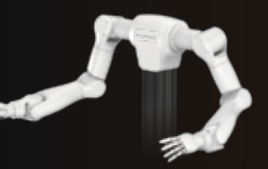
Full-joint compliant force control

- Each joint is built-in with a high-precision torque sensor
- Force Repeatability ≤0.15N, ≤0.05Nm
- Supports real-time force sensing and Self-Adaptation impedance adjustment



Lightweight integrated joint module

- Lightweight Design and Optimal Load-to-Weight Ratio
- Support rapid maintenance via modularization
- High motion efficiency and low overall equipment energy consumption



Adopts large hollow wiring design for the whole device

- The arm adopts a fully hollow structure, supporting internal routing for power and communication cables



Highly Scalable Open Design

- It supports abundant communication and power supply interfaces for quick integration of vision systems, sensors, various end-effectors, mobile chassis and complete machine platforms. It provides comprehensive SDK development tools to facilitate customers' secondary development and scenario customization

Industrial-grade reliable performance

- The high-rigidity body structure, paired with the precision compensation algorithm, effectively enhances the absolute positioning accuracy and operational stability, meeting the requirements for long-term continuous operation of industrial production lines

Application Scenarios



Performance and Specifications of General-purpose Joints (Non-force-controlled Version)



MODEL	FM-11-B	FM-14-B	FM-17-B	FM-20-B	FM-25-B
Product Weight (g)	420	730	1054	1600	3340
Dimensions (mm)	φ52*68.5	φ70*83.6	φ80*97.4	φ90*102	φ110*128.2
Gear Ratio	100	100	120	100	100
Rated Torque (N.m)	3.7	9	24	50	78
Average Load Torque (N.m)	6.2	13	39	62	126
Maximum Torque (N.m)	17.5	63	86	185	332
Rated Output Speed (RPM)	30	30	25	30	30
Repeatability (")	±15	±15	±15	±15	±15
Center Bore Diameter (mm)	10	12	12	12	12
Operating Temperature (°C)	0~45°C	0~45°C	0~45°C	0~45°C	0~45°C
Rated Power (W)	31	100	200	380	471
Rated Voltage (V)	48	48	48	48	48
Encoder Accuracy (bit)	18	18	18	18	18
Encoder Type	Dual Absolute Encoders	Dual Absolute Encoders	Dual Absolute Encoders	Dual Absolute Encoders	Dual Absolute Encoders
Brake Support	Supported	Supported	Supported	Supported	Supported
Communication Interface	EtherCAT	EtherCAT	EtherCAT	EtherCAT	EtherCAT

Product Advantages

 **Lightweight**
The smallest joint weighs only 420 g, enabling more efficient motion

 **Compact Design**
Compact structure, suitable for flexible layout of the complete robot

 **High Precision**
Precise control for enhanced overall robot performance

 **Fast Response**
EtherCAT communication, enabling efficient coordination of multiple joints

Performance and Specifications of General-purpose Joints (Force-controlled Version)



MODEL	FM-11-T-B	FM-14-T-B	FM-17-T-B	FM-20-T-B	FM-25-T-B
Product Weight (g)	440	860	1260	1820	3340
Dimensions (mm)	φ52*76.4	φ70*88.3	φ80*102.1	φ90*107.2	φ110*131.6
Gear Ratio	100	100	120	100	100
Rated Torque (N.m)	3.7	9	24	50	78
Average Load Torque (N.m)	6.2	13	39	62	126
Maximum Torque (N.m)	17.5	63	86	185	332
Rated Output Speed (RPM)	30	30	25	30	30
Repeatability (")	±15	±15	±15	±15	±15
Minimum Torque Resolution (N.m)	0.1	0.1	0.1	0.2	0.2
Center Bore Diameter (mm)	10	12	12	12	12
Operating Temperature (°C)	0~45°C	0~45°C	0~45°C	0~45°C	0~45°C
Rated Power (W)	31	100	200	380	471
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Brake Support	Supported	Supported	Supported	Supported	Supported
Communication Interface	EtherCAT	EtherCAT	EtherCAT	EtherCAT	EtherCAT

Product Advantages

 High-precision torque sensing for more stable operation

 Compliant motion control for delicate operations

 Rapid collision sensing enables safer operation