

## Industrials - China (H)

# Tour takeaways: low sentiment, export is key focus

Industry Overview

### Two-day trip to Dongguan/Shenzhen

We visited 6 automation and equipment companies based in Dongguan and Shenzhen during 15-16 Jan. Overall, most companies we visited are still concerned about demand from PV and battery sectors in 2024, while the demand recovery from generic manufacturing industry seems slow. The demand from consumer electronics sector is closely tied to Apple's product sales and innovation, while the orders outlook from Apple does not look bright. Some companies are trying to diversify the consumer electronics-related businesses by developing new products or penetrating non-Apple clients.

### Exports story: hot topic but constraints exist

Investors are mostly interested in the export stories of companies we visited. Automation companies admitted the vast market potential, but few committed big capex plans in the coming 2-3 years. Most of them will go abroad together with their clients as their clients from auto, battery, and consumer electronics sectors might have overseas expansion plans. As such, their overseas expansion pace will depend on the expansion pace of their clients. Regarding competition with global players when their clients move abroad, most companies said that stability and effectiveness of supply chain is the key issue to consider for Chinese manufacturing companies. In most cases, Chinese firms find it hard to find alternative automation equipment suppliers in local markets.

### Technology innovation goes on

Despite the sluggish domestic demand, automation companies still work on product innovation and try to achieve import substitution. Areas that we spotted with growing interest include high-end machine tool, humanoid robots, Perovskite cells and sensors.

### Marginal changes in expectations

Despite the gloomy outlook of China's automation sector in 2024, we see some marginal changes in expectations in some end-markets. Most of the companies have seen improving orders from the 3C sector since 2H23, driven by a recovery in the Huawei supply chain and the investment in AI servers. The sentiment in the PV sector is also seeing some marginal improvement thanks to the stabilizing supply chain prices. While the capacity addition outlook remains weak, companies now see opportunities from PERC capacity upgrade and the potential breakthrough of Perovskite technology.

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PCB: Printed circuit board

PERC: Passivated emitter and rear contact

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# Company takeaways

## UBTech | 9880 HK | Not covered

### UBTech's new humanoid robot product Walker S

UBTech launched its latest humanoid robot model Walker S on 29 Dec-2023. Compared with the old model Walker X, the new model is taller, has larger payload, and performs better in gripping things. Its maximum walking speed is 3km per hour and its hands can hold things weighing up to 15kg. Currently, the product is conducting factory field testing in the company's counterparties, mainly auto & auto parts companies. The robots mainly undertake responsibility such as material handling, sorting, and inspection. It may take UBTech six months to solve issues such as stability and perform the system compatibility testing. In 2H24, UBTech will deliver 500 units of robots for trial use (equivalent to RMB200mn sales). If it is successful, UBTech will deliver another 2,000 units in 2025.

### Hardware & software supply chain

Walker S has 41 degrees of freedom and uses 41 actuator modules (12 coreless motors for hands and the rest 29 motors for others). Each actuator module contains motor, servo drive, controller, reducer, encoder, etc. In the module, UBTech makes the controller (mainly PCB) itself, but sources sensors and chips from third parties, designs its own motors, drivers, and reducers, and finds suitable OEM/ODM for production of motors, drives, and reducers. The company also has its own algorithm for the machine vision. UBTech mainly utilizes deep-learning technology to pre-train its robots and eventually fine tune its robots (based on Llama 2 model).

### Market potential in industrial enterprises

UBTech thinks that humanoid robots can be used in the industrial enterprises and replace human being. For example, in the automobile assembly workshops, the automation rate is only 10% in China and hence it sees big market potential. Industrial robots are hardly used in the assembly workshop as it involves tasks such as gripping, handling, and sorting of components with high accuracy. Consequently, many tasks are still undertaken by workers. One humanoid robot can replace two workers in one workstation. Currently, the selling price and production cost for one humanoid robot for industrial use is RMB500k and RMB400k, respectively. The selling price at RMB500k is equivalent to 1.5 year of salaries for 2 workers in one workstation. If the annual production of robots can reach 10k units, the production cost could be reduced to RMB200k per unit.

### Exhibit 1: UBTEch's Walker X performing simple daily tasks

Walker X was launched in 2021



Source: BofA Global Research

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### Exhibit 2: UBTEch's newly launched Walker S

Walker S was launched at end-2023



Source: BofA Global Research

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