

中国华南制造基地

South China Manufacture Basis

广东拓斯达科技股份有限公司

GUANGDONG TOPSTAR TECHNOLOGY CO.,LTD

地址：广东省东莞市大岭山镇大塘朗创新路2号

ADD : No.2 Chuangxin Road, Datanglang, Dalingshan Town, Dongguan City, Guangdong Province.

电话：0769-8305 0999

TEL: 0769-8305 0999

传真：0769-8584 5562

FAX: 0769-8584 5562

邮箱：marketing@topstarltd.com

E-mail:marketing@topstarltd.com

江苏拓斯达机器人有限公司

Jiangsu Topstar Robot Co.,Ltd

地址：江苏省苏州市吴中经济开发区

ADD: 3rd Floor, Building 1, No. 818, Wusong Road, Guoxiang Street,

郭巷街道吴淞路818号1幢3楼

Wuzhong Economic Development Zone, Suzhou City, Jiangsu Province, China

电话：0512-8686 4305 手机：139 1543 5939

TEL: 0512-8686 4305 MOB: 139 1543 5939

昆山拓斯达机器人科技有限公司

Kunshan Topstar Robot Technology Co.,Ltd

地址：江苏省昆山市新南路888号联邦国际商务花园18栋

ADD: Building 18, Federal International Business Garden, No. 888 Xinnan Road,

电话：0512-3688 1796

Kunshan City, Jiangsu Province, China

手机：185 0156 0757

TEL: 0512-3688 1796

MOB: 185 0156 0757

宁波拓晨机器人科技有限公司

Ningbo Topstar Robot Technology Co.,Ltd

地址：浙江省余姚市凤山街道舜汇东路93弄

ADD: Lane 93, Shunhui East Road, Fengshan Street, Yuyao City, Zhejiang Province

电话：0574-8610 5571

TEL: 0574-8610 5571

传真：0574-8610 5571

FAX: 0574-8610 5571

手机：137 7723 2779

MOB: 137 7723 2779

华中服务办事处

华北服务办事处

越南服务办事处

地址：重庆市渝北区融创中央广场

地址：天津市西青区精武镇才智道

地址：北江市黎利坊雄王路3号TUTACENTER

5楼1105室

12号德维洛浦产业园C座4-2-3

一楼

手机：186 0209 6012

手机：139 2957 0939

手机：186 0209 6307 / 0084-346 860 156

Central China Service Offices, China

North China Service Offices, China

Vietnam Service Office

ADD: Room 1105, Building 5, Rongchuang

ADD: 4-2-3, Block C, Dewelluopu Industrial

Address: 1st Floor, TUTACENTER, No. 3, Xiongwang Road,

Central Plaza, Yubei District, Chongqing

Park, No. 12 Caizhi Road, Jingwu Town,

Phu Tang, Bac Giang

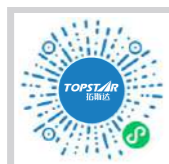
MOB: 186 0209 6012

Xiqing District, Tianjin

MOB: 186 0209 6307 / 0084-346 860 156

有关产品性质和适用范围的说明并不保证产品属性，仅作可供了解的信息。我们的供货范围及提供的服务完全以合同条款为准。技术数据和插图仅作为供货参考。保留更改权利。

Feature and scope of the product does not guarantee the product attributes, only for reference. Our scope of delivery and services provided are based solely on the terms of delivery and services provided are based solely on the terms of the contract. Technical data and illustration are only for reference. We reserve the rights of changing.



全国统一客服热线
Domestic Service Hotline
400-096-8005
Http://www.topstarltd.com

TSDSC2022-B

拓斯达机器人 产品介绍手册

Topstar Robots
Product Introduction Manual

核心技术驱动的智能硬件平台
Intelligent hardware platform driven by core technology

TOPSTAR
拓斯达

让工业制造更美好
Making Industrial Manufacturing Better



COMPANY PROFILE

公司简介



广东拓斯达科技股份有限公司（简称：拓斯达，股票代码：300607）成立于2007年，总部位于广东省东莞市大岭山镇，注册资本4.26亿元。

拓斯达坚持“让工业制造更美好”的企业使命，通过以工业机器人、注塑机、CNC为核心的智能装备，以及控制、伺服、视觉三大核心技术，打造以核心技术驱动的智能硬件平台，为制造企业提供智能工厂整体解决方案。截至2021年12月，公司已在全国设有40余家办事处，触达客户超20万家，服务客户超15000家。

Guangdong Topstar Technology Co., Ltd. (abbr. Topstar, stock code: 300607) was established in 2007 and headquartered in Dalingshan Town, Dongguan City, Guangdong Province with a registered capital of 426 million yuan.

Topstar insists on the corporate mission of "making industrial manufacturing better". Through industrial robots, injection molding machines, CNC as the core of intelligent equipment and controllers, servo drives, and vision system as three core technologies, to create a core technology-driven intelligent hardware platform for manufacturing enterprises to provide intelligent factory solutions. As of December 2021, the company has set up more than 40 offices across the country, reaching more than 200,000 customers and serving more than 15,000 customers.

公司是国家高新技术企业、广东省机器人骨干企业、广东省服务型制造示范企业、东莞市“倍增计划”试点企业，建有广东省企业重点实验室、广东省工程技术研究中心、广东省企业技术中心、广东省博士工作站、东莞市技师工作站等人才及科研平台。公司荣获“东莞市政府质量奖”“东莞市先进集体”“东莞市友善企业”等奖项，并入选“2021中国智能制造50强”“2021广东企业500强”“2021工业机器人TOP50”等榜单。

截至2021年12月，拓斯达拥有授权专利550项，其中发明专利41项；各类软件著作权71项。公司多项产品荣获广东省名牌产品、广东省名优高新技术产品，并通过欧洲CE认证。

Topstar is a National High-Tech Enterprise, Guangdong Province Robot Backbone Enterprise, Guangdong Province Service-oriented Manufacturing Demonstration Enterprise, and Dongguan Doubling Plan Enterprise. We have built key laboratories in Guangdong Province, Guangdong Engineering Technology Research Center, Guangdong Enterprise Technology Center, Guangdong Doctoral Workstation, Dongguan Technician Workstation, and other talents and scientific research platforms. Topstar won the "Dongguan Government Quality Award", "Dongguan Advanced Collective", "Dongguan Friendly Enterprise", and other awards. And it was selected in the "Top 50 Intelligent Manufacturing in China in 2021", "Top 500 Guangdong Enterprises in 2021", "Top 50 Industrial Robots in 2021", and other lists.

As of December 2021, Topstar has 550 authorized patents, including 41 invention patents; 71 software copyrights of various types. Many of our products have won the Guangdong Famous Brand Products, and Guangdong Famous High-tech Products, and passed the European CE certification.

COMPANY CULTURE

企业文化

企业使命

Enterprise Mission

让工业制造更美好

Make Industrial Manufacturing Better

企业定位

Enterprise Positioning

以核心技术驱动的智能硬件平台

Intelligent hardware platform driven by core technology

企业愿景

Enterprise Vision

助力100万制造企业实现智能制造

助力100万工程师服务于智能制造

To help millions of manufacturing enterprises to realize intelligent manufacture
To help millions of engineers serving the intelligent manufacture

核心价值观

Core Values

全心全意为客户服务

群体奋斗，群体成功

Wholeheartedly for Customer Service

Together We Strive, Together We Achieve

组织气质

Team Spirit

开放协同，因我不同

Cooperate but respect personality



拓斯达不是雇佣和解雇型企业，而是打造创业型平台，集众人之力，实现统一己之力所无法达成目的的平台，其核心精神是“分享”。——《拓斯达宣言》

TOPSTAR is not a hiring or dismissal enterprise, but aim to create a business platform, which setting the power of everyone to achieve the goal which can not be achieved by their own. Its core spirit is "share".

QUALIFICATION EVALUATION

资质评定

拓斯达坚持技术为王的经营理念，先后取得了各项高新技术企业的资质和认证，为客户提供先进和高端的产品。

Topstar adheres to the business philosophy, which puts technology in the dominant position. It has successively obtained many qualifications and certifications of high-tech enterprises, and provided the most advanced and high-end product to customers.

国家级高新技术企业认证、欧盟CE认证、ISO9001质量体系认证、广东省名牌机器人、广东省“守合同重信用”企业、粤港澳大湾区联合创新中心创新基地、累计产品技术专利550项、广东省级企业技术中心、华南理工大学产学研合作基地、校企合作实践基地....

National high-tech enterprise certification、CE Certification、ISO9001 Quality System Certification、Guangdong Province Top Brand Robot、Guangdong Province "contracts observing and credit honoring" enterprises、Guangdong-Hong Kong-Macao Greater Bay Area Joint Innovation Center、550 technology patents for products、Guangdong province enterprise technology center、South China University of technology production and research cooperation base、School-enterprise cooperation practice base....



DEVELOPMENT HISTORY

发展历程

2008

开拓市场 创新研发辅机

研发出新型节能三机一体机；
研发出直接冷却160度水温机，降温速度更快。

2008

Expanded the market and conducted innovative R&D on auxiliary equipment

Developed new type of energy-saving three-in-one equipment.

Developed 160 °C direct cooling water circulating temperature controller, increasing cooling efficiency.

2009

提高产品自产率 客户达1000家

成立拓斯达商学院；
市场成交客户量突破1000家；
成立钣金工厂，提高自产率，产能再次提升。

2009

Increased independent production capacity; more than 1,000 customers

Established Topstar Business School.
Customer base exceeds 1,000 customers.
Established sheet metal factory, enhancing independent production capacity and rate.

2010

开发机械手 布局全国市场

开发机械手产品，成为自动化系统输出全套产业链运营商；
设立无锡办事处，辐射华东，开启全国市场布局；
与清华大学合作，引入先进企业管理理念。

2010

Developed manipulator products and established market across China

Developed manipulator products and become a comprehensive automation system industry chain operator.
Established Wuxi office to cover markets in East China and launched the national market layout.
Introduced advanced enterprise management concept in partnership with Tsinghua University.

2007

50万注册资金起步

拓斯达以50万元注册资金注册成立；
提出“打造一流品质”的企业和产品定位。

2007

Company established with a registered capital of RMB 500,000

Topstar was incorporated with a registered capital of RMB 500,000.
“Creating first-class quality” enterprise and product positioning proposed.

2011

注塑自动化全套解决方案运营商

自主研发的三轴、五轴伺服机械手上市，获得广泛好评；

确立整体注塑自动化解决方案的发展方向，提出主动服务理念；

成功举办“华南塑料工业高端论坛”。

2011

Became injection molding automation total solution operator

Launched independently developed three-axis and five-axis servo manipulators in the market, which gained wide market recognition.

Established the development direction of the overall injection molding automation solution, and launched active service concept.
Successfully held South China Plastics Industry High-end Forum.

2012

认证高新企业 布局全球市场

获得国家高新技术企业称号；

布局全球市场，产品销往东南亚、欧洲、南美洲等地；

与华南理工大学签署产学研合作协议。

2012

Certified as a high-tech enterprise and established global market layout

Awarded the National High-tech Enterprise title.
Established global market layout with products sold in Southeast Asia, Europe, South America, and other regions.

Signed an industry-university-research cooperation agreement with South China University of Technology.

2013

引入战略投资 多领域拓展自动化应用场景

投资3亿扩产自动化制造基地，项目纳入东莞市重点建设项目；

组建自动化项目部，布局打磨、冲压、压铸等多领域自动化应用场景；进行股份制改革，核心员工持股。

2013

Introduced strategic investments and developed multi-field automation

Invested RMB 300 million to expand the automatic manufacturing base's production capacity; the project was included in the key construction project of Dongguan City.

Established the Automation Project department, set up automation in grinding, stamping, die-casting, and other fields, conducted joint-stock system reform, and initiated share ownership by core employees.

2014

挂牌新三板 响应“机器人”政策

挂牌新三板，实现同步定增；

率先响应“机器人”政策，提出一年回本的自动化理念；

华北、华中营销中心成立，全国新设20余办事处。

2014

Listed in the new OTC market and took the lead in “machines replacing humans” policy

Listed on the new OTC market and realized concurrent directional add-issuance.

Took the lead in the “machines replacing humans” policy and proposed 1-year ROI on automation concept.

Established North China and Central China marketing centers and more than 20 new offices across China.

2015

掌握核心技术 研发工业机器人

掌握控制系统核心技术，布局工业机器人研发；

形成工业机器人、自动化解决方案、整厂水电气系统、配套设备等多领域智能制造体系。

2015

Acquired expertise in core technologies and conducted R&D on industrial robots

Mastered the core technology of the control system and formulated R&D plan for industrial robots.

Established a multi-field intelligent manufacturing system including industrial robot, automation solution, whole plant water and electrical system, and ancillary equipment.

2016

整合上下游资源 打造智能生态圈

自主研发六轴工业机器人本体上市；

提出打造软件研发、本体设计、集成方案、整厂自动化四位一体的智能制造生态圈理念；
整合上下游资源，与ABB签订战略合作协议，深入展开合作。

2016

Integrated upstream and downstream resources and created intelligent ecosystem

Launched the independently developed six-axis industrial robots in the market.

Proposed the concept of creating a four-in-one intelligent manufacturing ecosystem of software R&D, robot design, integration solution, and whole-plant automation.

Integrated upstream and downstream resources and signed strategic cooperation agreement with ABB to carry out in-depth cooperation

2017

登陆创业板 实施员工持股计划

创业板上市，股票代码300607，实施员工持股计划惠及200余人；

打造以工业机器人为核心，软硬件结合的智能制造综合服务体系，通过四部两院组织架构输出智能制造整体解决方案；
导入SAP信息化管理及任职资格体系，提升管理团队效能。

2017

Listed on GEM and expanded employee stock ownership

Listed on GEM with stock code 300607, and expanded stock ownership to more than 200 employees.

Built a comprehensive intelligent manufacturing service system integrating hardware and software with industrial robots at the core, and launched total intelligent manufacturing solutions by organizationally restructuring four departments and two academies.

Introduced SAP information management and qualification system to improve management and operational efficiency.

2018

新园区 新使命

发布企业全新使命、愿景、价值观，确定新组织气质；

迁入新园区，举办首届全球开放日；
优化产业布局，收购野田智能、筹建苏州生产研发基地、置地松山湖。

2018

Relocated to the new park and released new company mission

Released the company's new mission, vision, and values and defined the new organizational outlook.
Relocated to the new park and held the first Global Open Day session.

After optimizing the industrial layout, the company acquired Noda, prepared for the construction of Suzhou Production and R&D Base, and purchased land in Songshan Lake area.

2019

拿结果 强组织 做价值

骠科技成立，布局产业互联网；

公开增发募集资金6.5亿元用于苏州生产基地建设；

拓星辰系列上市，拓星河1号进入Beta阶段。

2019

Targeted improved results, strengthened the organization, and realized value generation

Established TUOTUO Technology to layout the industrial internet.
Raised RMB 650 million through public secondary offering.
Launched TXC series in the market and TXH No.1 entered the beta stage.

2020

新产品 新赛道

组建自有研发团队，开拓注塑机业务线，实现注塑业务整体解决方案全产品闭环；

开拓CNC数控机床业务线；
董事长吴丰礼参加习近平总书记主持召开的企业家座谈会；

服务客户数突破10000家。

2020

Launched new products and started on a new track

Established independent R&D team, launched the injection molding machine business line and provided total solutions to injection molding businesses.

Exploit the CNC machine tool business line.
Chairman Wu Fengli attended the entrepreneurs' symposium presided over by President Xi Jinping.
Customer base exceeds 10,000 customers.

2021

强战略 定核心

提出“以核心技术驱动的智能硬件平台”战略定位；
确立以工业机器人、注塑机、CNC数控机床为三大核心产品；

发行可转债募资6.7亿元用于建设智能制造整体解决方案研发及产业化项目；
拓斯达智能设备总部基地（大岭山连平）项目完成摘牌；
布局五轴高端数控机床赛道，控股埃弗米。

2021

Strengthened strategies and initiated platform-oriented business

Launched “integration robot” on the automation equipment integrated service platform.
Established industrial robots, injection molding machines and CNC as the three core products.

Raised RMB 670 million by issuing convertible bonds to construct R&D facilities and to develop total intelligent manufacturing industrialization projects.

Completed and delisted Topstar intelligent equipment headquarter base project (Lianping, Dalingshan).
Layout the five-axis high-end CNC machine tool track, holding AFM company.

SCARA SERIES

SCARA系列

拓星辰 TR002-HP400



| 产品型号 ROBOT MODEL | | 拓星辰 TR002-HP400 |
|---|--------------------------|--------------------------|
| 臂展 Arm Stroke | 第1-2关节 1-2 Axis | 400mm |
| Z轴行程 Z axis Stroke | | 180mm |
| 负载 Payload | 额定负载 Rated load | 2KG |
| | 最大负载 Max load | 4KG |
| J4惯性力矩 J4 moment of inertia | 额定 Rated | 0.005kg · m ² |
| | 最大 Max | 0.05kg · m ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.01mm |
| 标准循环时间(额定负载) Standard Cycle Time (rated load) | | 0.39s (2kg) |
| 运动范围 Movement range | 第1关节 J1 Axis | ±132° |
| | 第2关节 J2 Axis | ±145° |
| | 第3关节 J3 Axis | 180mm |
| | 第4关节 J4 Axis | ±360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 720° /s |
| | 第2关节 J2 Axis | 720° /s |
| | 第3关节 J3 Axis | 1164mm/s |
| | 第4关节 J4 Axis | 1818° /s |
| 标配IO数量 Standard IO quantity | | 32DI/16DO (NPN) |
| 电压 Voltage | 单相AC220V ± 10%、50Hz ± 1% | |
| 功率 Power | | 1.35kw |
| 机械臂防护等级 Arm protection level | | IP20 |
| 控制柜防护等级 Control cabinet protection level | | IP20 |
| 本体重量 Body weight | | 13.5KG (不含线缆) |
| 控制柜重量 Control cabinet weight | | 6.8kg |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | | 325x233x125 |

拓星辰 TR002-HP500



| 产品型号 ROBOT MODEL | | 拓星辰 TR002-HP500 |
|---|--------------------------|--------------------------|
| 臂展 Arm Stroke | 第1-2关节 1-2 Axis | 500mm |
| Z轴行程 Z axis Stroke | | 180mm |
| 负载 Payload | 额定负载 Rated load | 2KG |
| | 最大负载 Max load | 5KG |
| J4惯性力矩 J4 moment of inertia | 额定 Rated | 0.005kg · m ² |
| | 最大 Max | 0.05kg · m ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.015mm |
| 标准循环时间(额定负载) Standard Cycle Time (rated load) | | 0.33s (2kg) |
| 运动范围 Movement range | 第1关节 J1 Axis | ±126° |
| | 第2关节 J2 Axis | ±142° |
| | 第3关节 J3 Axis | 180mm |
| | 第4关节 J4 Axis | ±360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 450° /s |
| | 第2关节 J2 Axis | 720° /s |
| | 第3关节 J3 Axis | 1164mm/s |
| | 第4关节 J4 Axis | 1818° /s |
| 标配IO数量 Standard IO quantity | | 32DI/16DO (NPN) |
| 电压 Voltage | 单相AC220V ± 10%、50Hz ± 1% | |
| 功率 Power | | 1.35kw |
| 机械臂防护等级 Arm protection level | | IP20 |
| 控制柜防护等级 Control cabinet protection level | | IP20 |
| 本体重量 Body weight | | 16.5KG (不含线缆) |
| 控制柜重量 Control cabinet weight | | 6.8kg |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | | 325x233x125 |



产品系列 PRODUCT SERIES

SCARA系列、六轴多关节系列、并联多关节系列

Scara Series、6 Axis Multi-joint Series、Parallel Multi-joint Series

用途: 应用于上下料、精密装配、快速搬运、检测、涂胶、点胶、分拣等

应用领域: 3C、光电、新能源、食品、药品等领域

介绍: 新款全自研四轴SCARA机器人。配备精准的驱控一体控制系统，搭配定制化的视觉模块，实现机器人快速自动标定，具有很强的易用性。

Uses: used for loading and unloading, precision assembly, fast handling, testing, gluing, dispensing, sorting, etc.

Application fields: 3C, photoelectric, new energy, food, medicine and other fields

Introduction: The new self-developed four-axis SCARA robot. Equipped with a precise integrated control system for driving and controlling, with a customized vision module, it can realize rapid and automatic calibration of the robot, which is very easy to use.

拓星辰 TR003-HP600



拓星辰 TR003-HP700



| 产品型号 ROBOT MODEL | | 拓星辰 TR003-HP600 |
|---|------------------------|-------------------------|
| 臂展 Arm Stroke | 第1-2关节 1-2 Axis | 600mm |
| Z轴行程 Z axis Stroke | | 170mm |
| 负载 Payload | 额定负载 Rated load | 3KG |
| | 最大负载 Max load | 6KG |
| J4惯性力矩 J4 moment of inertia | 额定 Rated | 0.01kg · m ² |
| | 最大 Max | 0.1kg · m ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.015mm |
| 标准循环时间(额定负载) Standard Cycle Time (rated load) | | 0.38s (3kg) |
| 运动范围 Movement range | 第1关节 J1 Axis | ±126° |
| | 第2关节 J2 Axis | ±140° |
| | 第3关节 J3 Axis | 170mm |
| | 第4关节 J4 Axis | ±360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 450° /s |
| | 第2关节 J2 Axis | 720° /s |
| | 第3关节 J3 Axis | 1067mm/s |
| | 第4关节 J4 Axis | 1765° /s |
| 标配IO数量 Standard IO quantity | | 32DI/16DO (NPN) |
| 电压 Voltage | 单相AC220V ±10%、50Hz ±1% | |
| 功率 Power | 1.35kw | |
| 机械臂防护等级 Arm protection level | IP20 | |
| 控制柜防护等级 Control cabinet protection level | IP20 | |
| 本体重量 Body weight | 22KG (不含线缆) | |
| 控制柜重量 Control cabinet weight | 6.8kg | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 325x233x125 | |

| 产品型号 ROBOT MODEL | | 拓星辰 TR003-HP700 |
|---|------------------------|-------------------------|
| 臂展 Arm Stroke | 第1-2关节 1-2 Axis | 700mm |
| Z轴行程 Z axis Stroke | | 170mm |
| 负载 Payload | 额定负载 Rated load | 3KG |
| | 最大负载 Max load | 6KG |
| J4惯性力矩 J4 moment of inertia | 额定 Rated | 0.02kg · m ² |
| | 最大 Max | 0.1kg · m ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.02mm |
| 标准循环时间(额定负载) Standard Cycle Time (rated load) | | 0.43s (3kg) |
| 运动范围 Movement range | 第1关节 J1 Axis | ±132° |
| | 第2关节 J2 Axis | ±142° |
| | 第3关节 J3 Axis | 170mm |
| | 第4关节 J4 Axis | ±360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 360° /s |
| | 第2关节 J2 Axis | 720° /s |
| | 第3关节 J3 Axis | 1067mm/s |
| | 第4关节 J4 Axis | 1765° /s |
| 标配IO数量 Standard IO quantity | | 32DI/16DO (NPN) |
| 电压 Voltage | 单相AC220V ±10%、50Hz ±1% | |
| 功率 Power | 1.35kw | |
| 机械臂防护等级 Arm protection level | IP20 | |
| 控制柜防护等级 Control cabinet protection level | IP20 | |
| 本体重量 Body weight | 25KG (不含线缆) | |
| 控制柜重量 Control cabinet weight | 6.8kg | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 325x233x125 | |

拓星辰 TR005-HP600



拓星辰 TR005-HP700



| 产品型号 ROBOT MODEL | | 拓星辰 TR005-HP600 |
|---|------------------------|-------------------------|
| 臂展 Arm Stroke | 第1-2关节 1-2 Axis | 600mm |
| Z轴行程 Z axis Stroke | | 240mm |
| 负载 Payload | 额定负载 Rated load | 5KG |
| | 最大负载 Max load | 10KG |
| J4惯性力矩 J4 moment of inertia | 额定 Rated | 0.05kg · m ² |
| | 最大 Max | 0.25kg · m ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.02mm |
| 标准循环时间(额定负载) Standard Cycle Time (rated load) | | 0.46s (5kg) |
| 运动范围 Movement range | 第1关节 J1 Axis | ±132° |
| | 第2关节 J2 Axis | ±145° |
| | 第3关节 J3 Axis | 240mm |
| | 第4关节 J4 Axis | ±360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 360° /s |
| | 第2关节 J2 Axis | 420° /s |
| | 第3关节 J3 Axis | 1333mm/s |
| | 第4关节 J4 Axis | 1800° /s |
| 标配IO数量 Standard IO quantity | | 32DI/16DO (NPN) |
| 电压 Voltage | 单相AC220V ±10%、50Hz ±1% | |
| 功率 Power | 1.35kw | |
| 机械臂防护等级 Arm protection level | IP20 | |
| 控制柜防护等级 Control cabinet protection level | IP20 | |
| 本体重量 Body weight | 28KG (不含线缆) | |
| 控制柜重量 Control cabinet weight | 6.8kg | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 325x233x125 | |

| 产品型号 ROBOT MODEL | | 拓星辰 TR005-HP700 |
|---|------------------------|-------------------------|
| 臂展 Arm Stroke | 第1-2关节 1-2 Axis | 700mm |
| Z轴行程 Z axis Stroke | | 240mm |
| 负载 Payload | 额定负载 Rated load | 5KG |
| | 最大负载 Max load | 10KG |
| J4惯性力矩 J4 moment of inertia | 额定 Rated | 0.05kg · m ² |
| | 最大 Max | 0.25kg · m ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.02mm |
| 标准循环时间(额定负载) Standard Cycle Time (rated load) | | 0.45s (5kg) |
| 运动范围 Movement range | 第1关节 J1 Axis | ±132° |
| | 第2关节 J2 Axis | ±140° |
| | 第3关节 J3 Axis | 240mm |
| | 第4关节 J4 Axis | ±360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 360° /s |
| | 第2关节 J2 Axis | 420° /s |
| | 第3关节 J3 Axis | 1333mm/s |
| | 第4关节 J4 Axis | 1800° /s |
| 标配IO数量 Standard IO quantity | | 32DI/16DO (NPN) |
| 电压 Voltage | 单相AC220V ±10%、50Hz ±1% | |
| 功率 Power | 1.35kw | |
| 机械臂防护等级 Arm protection level | IP20 | |
| 控制柜防护等级 Control cabinet protection level | IP20 | |
| 本体重量 Body weight | 30KG (不含线缆) | |
| 控制柜重量 Control cabinet weight | 6.8kg | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 325x233x125 | |

*本手册图片仅供参考，外观以实物为准。本说明若有任何细节之更改，恕不另行通知。本手册所标注数据来源于拓斯达实验室数据，可能与实际数据存在差异。The pictures in this manual are for reference only, and the appearance is subject to the actual product. This description is subject to change without notice if any details are changed. The data marked in this manual comes from the data of Topstar Labs, which may be different from the actual data.

6 AXIS MULTI-JOINT SERIES

六轴多关节系列

拓星云 TRV007-710-A



| 产品型号 ROBOT MODEL | | 拓星云 TRV007-710-A |
|--|-----------------------|---------------------------|
| 臂展 Arm Stroke | 第1-6关节 1-6 Axis | 715mm |
| 最大负载 Max load | | 7KG |
| J4, J5轴允许负载转动惯量 J4,J5 Allowable Inertia Moment | | 16Nm/0.45kgm ² |
| J6轴允许负载转动惯量 J6 Allowable Inertia Moment | | 9Nm/0.14kgm ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.02mm |
| 运动范围 Movement range | 第1关节 J1 Axis | -170° ~+170° |
| | 第2关节 J2 Axis | -98° ~+145° |
| | 第3关节 J3 Axis | -200° ~+70° |
| | 第4关节 J4 Axis | -190° ~+190° |
| | 第5关节 J5 Axis | -125° ~+125° |
| | 第6关节 J6 Axis | -360° ~+360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 383° /s |
| | 第2关节 J2 Axis | 355° /s |
| | 第3关节 J3 Axis | 420° /s |
| | 第4关节 J4 Axis | 450° /s |
| | 第5关节 J5 Axis | 450° /s |
| | 第6关节 J6 Axis | 768.5° /s |
| 标配IO数量 Standard IO quantity | | 16DI/16DO |
| 电压 Voltage | 单相220VAC ±10% 49-61HZ | |
| 功率 Power | | 1KVA |
| 机械臂防护等级 Arm protection level | | IP40/IP67可选 |
| 控制柜防护等级 Control cabinet protection level | | IP20 |
| 本体重量 Body weight | | 29KG |
| 控制柜重量 Control cabinet weight | | 24kg |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | | 427×403×257 |

拓星云 TRV007-910-A



| 产品型号 ROBOT MODEL | | 拓星云 TRV007-910-A |
|--|-----------------------|---------------------------|
| 臂展 Arm Stroke | 第1-6关节 1-6 Axis | 912mm |
| 最大负载 Max load | | 7KG |
| J4, J5轴允许负载转动惯量 J4,J5 Allowable Inertia Moment | | 16Nm/0.45kgm ² |
| J6轴允许负载转动惯量 J6 Allowable Inertia Moment | | 9Nm/0.14kgm ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.03mm |
| 运动范围 Movement range | 第1关节 J1 Axis | -170° ~+170° |
| | 第2关节 J2 Axis | -100° ~+140° |
| | 第3关节 J3 Axis | -210° ~+70° |
| | 第4关节 J4 Axis | -190° ~+190° |
| | 第5关节 J5 Axis | -125° ~+125° |
| | 第6关节 J6 Axis | -360° ~+360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 307° /s |
| | 第2关节 J2 Axis | 297.5° /s |
| | 第3关节 J3 Axis | 336° /s |
| | 第4关节 J4 Axis | 450° /s |
| | 第5关节 J5 Axis | 450° /s |
| | 第6关节 J6 Axis | 768.5° /s |
| 标配IO数量 Standard IO quantity | | 16DI/16DO |
| 电压 Voltage | 单相220VAC ±10% 49-61HZ | |
| 功率 Power | | 1KVA |
| 机械臂防护等级 Arm protection level | | IP40/IP67可选 |
| 控制柜防护等级 Control cabinet protection level | | IP20 |
| 本体重量 Body weight | | 31KG |
| 控制柜重量 Control cabinet weight | | 24kg |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | | 427×403×257 |

介绍: 采用轻量化机身, 主要应用于3C电子等高精度精密生产作业场景, 应用于组装、拣选/放置、上下料、工具操作等

Introduction: Lightweight body, mainly used in 3C electronics and other high-precision and precise production scenes, used in assembly, picking/placement, loading and unloading, tool operation, etc.

拓星际 R081-08-T



| 产品型号 ROBOT MODEL | | 拓星际 R081-08-T |
|--|--------------------------------------|------------------------|
| 臂展 Arm Stroke | 第1-6关节 1-6 Axis | 818mm |
| 最大负载 Max load | | 8KG |
| J4, J5轴允许负载转动惯量 J4,J5 Allowable Inertia Moment | | 0.5kg · m ² |
| J6轴允许负载转动惯量 J6 Allowable Inertia Moment | | 0.2kg · m ² |
| 综合重复定位精度 Repeat Positioning Accuracy | | ±0.02mm |
| 运动范围 Movement range | 第1关节 J1 Axis | -170° ~+170° |
| | 第2关节 J2 Axis | -64° ~+145° |
| | 第3关节 J3 Axis | -113° ~+255° |
| | 第4关节 J4 Axis | -190° ~+190° |
| | 第5关节 J5 Axis | -135° ~+135° |
| | 第6关节 J6 Axis | -360° ~+360° |
| 最大运动速度 Max movement speed | 第1关节 J1 Axis | 455° /s |
| | 第2关节 J2 Axis | 385° /s |
| | 第3关节 J3 Axis | 520° /s |
| | 第4关节 J4 Axis | 550° /s |
| | 第5关节 J5 Axis | 550° /s |
| | 第6关节 J6 Axis | 1000° /s |
| 标配IO数量 Standard IO quantity | | 16DI/16DO (NPN) |
| 电压 Voltage | 三相AC200/220V(+10%~-15%) 50/60Hz(±2%) | |
| 功率 Power | | 1kVA |
| 机械臂防护等级 Arm protection level | | IP67 |
| 控制柜防护等级 Control cabinet protection level | | IP20 |
| 本体重量 Body weight | | 39KG |
| 控制柜重量 Control cabinet weight | | 8.1KG |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | | 325×133×300 |

PARALLEL MULTI-JOINT SERIES

并联多关节系列

拓星际 P060J-03-H



| 产品型号 ROBOT MODEL | 拓星际 P060J-03-H | |
|--|----------------------------|-----------|
| 臂展 Arm Stroke | 3+1轴 Axis | 600*250mm |
| 额定负载 Rated load | 3KG | |
| 最大负载 Max load | 5KG | |
| 标准循环时间(s) Standard Cycle Time | 0.4 秒/节拍 (25/305/25(mm)) | |
| 综合重复定位精度 Repeat Positioning Accuracy | XYZ(mm) | ±0.1mm |
| | R(°) | ±0.1° |
| 旋转轴(°) Rotation Axis (°) | ±360° | |
| 标配IO数量 Standard IO quantity | 12DI/16DO NPN | |
| 电压 Voltage | 单相 交流220V | |
| 功率 Power | 3KVA | |
| 机械臂防护等级 Arm protection level | IP54 | |
| 控制柜防护等级 Control cabinet protection level | IP54 | |
| 本体重量 Body weight | 38KG | |
| 控制柜重量 Control cabinet weight | 28KG | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 504 × 460 × 302mm | |

拓星际 P080J-03-H



| 产品型号 ROBOT MODEL | 拓星际 P080J-03-H | |
|--|----------------------------|-----------|
| 臂展 Arm Stroke | 3+1轴 Axis | 800*250mm |
| 额定负载 Rated load | 3KG | |
| 最大负载 Max load | 5KG | |
| 标准循环时间(s) Standard Cycle Time | 0.4 秒/节拍 (25/305/25(mm)) | |
| 综合重复定位精度 Repeat Positioning Accuracy | XYZ(mm) | ±0.1mm |
| | R(°) | ±0.1° |
| 旋转轴(°) Rotation Axis (°) | ±360° | |
| 标配IO数量 Standard IO quantity | 12DI/16DO NPN | |
| 电压 Voltage | 单相 交流220V | |
| 功率 Power | 3KVA | |
| 机械臂防护等级 Arm protection level | IP54 | |
| 控制柜防护等级 Control cabinet protection level | IP54 | |
| 本体重量 Body weight | 38KG | |
| 控制柜重量 Control cabinet weight | 28KG | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 504 × 460 × 302mm | |

用途: 分拣、上下料、装箱

应用领域: 食品、药品、物流、3C、化工、汽配

介绍: 实现传送带的快速跟随、抓取、放置, 广泛应用于食品、汽车等行业; 具备负载大、速度快、结构稳定等特点。

Uses : sorting, loading and unloading, packing

Application areas: food, medicine, logistics, 3C, chemical industry, auto parts

Introduction: It realizes the fast following, grabbing and placing of the conveyor belt, which is widely used in food, automobile and other industries; it has the characteristics of large load, fast speed and stable structure.

拓星际 P100J-03-H



| 产品型号 ROBOT MODEL | 拓星际 P100J-03-H | |
|--|----------------------------|------------|
| 臂展 Arm Stroke | 3+1轴 Axis | 1000*250mm |
| 额定负载 Rated load | 3KG | |
| 最大负载 Max load | 5KG | |
| 标准循环时间(s) Standard Cycle Time | 0.4 秒/节拍 (25/305/25(mm)) | |
| 综合重复定位精度 Repeat Positioning Accuracy | XYZ(mm) | ±0.1mm |
| | R(°) | ±0.1° |
| 旋转轴(°) Rotation Axis (°) | ±360° | |
| 标配IO数量 Standard IO quantity | 12DI/16DO NPN | |
| 电压 Voltage | 单相 交流220V | |
| 功率 Power | 3KVA | |
| 机械臂防护等级 Arm protection level | IP54 | |
| 控制柜防护等级 Control cabinet protection level | IP54 | |
| 本体重量 Body weight | 39KG | |
| 控制柜重量 Control cabinet weight | 28KG | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 504 × 460 × 302mm | |

拓星际 P120J-03-H



| 产品型号 ROBOT MODEL | 拓星际 P120J-03-H | |
|--|----------------------------|------------|
| 臂展 Arm Stroke | 3+1轴 Axis | 1200*350mm |
| 额定负载 Rated load | 3KG | |
| 最大负载 Max load | 5KG | |
| 标准循环时间(s) Standard Cycle Time | 0.5 秒/节拍 (25/305/25(mm)) | |
| 综合重复定位精度 Repeat Positioning Accuracy | XYZ(mm) | ±0.2mm |
| | R(°) | ±0.1° |
| 旋转轴(°) Rotation Axis (°) | ±360° | |
| 标配IO数量 Standard IO quantity | 12DI/16DO NPN | |
| 电压 Voltage | 单相 交流220V | |
| 功率 Power | 3KVA | |
| 机械臂防护等级 Arm protection level | IP54 | |
| 控制柜防护等级 Control cabinet protection level | IP54 | |
| 本体重量 Body weight | 72KG | |
| 控制柜重量 Control cabinet weight | 28KG | |
| 控制柜尺寸(长*宽*高)mm Control cabinet size (L*W*H)mm | 504 × 460 × 302mm | |

DRIVE AND CONTROL INTEGRATED CONTROLLER

驱控一体控制器

驱控一体电气接口介绍

Introduction of integrated electrical interface of drive and control



1、更丰富的功能接口 Diverse functional interface

自带丰富的硬件接口，适用更多的行业应用，内置视觉、传送带跟随、托盘、安全区域等等工艺，支持modbus协议，自有协议二次开发应用。

Build-in diverse hardware interfaces, suitable for more industry applications, built-in vision, conveyor belt follow, pallets, safe areas and other processes, support modbus protocol, and secondary development applications of its own protocol.

2、更简单的使用方式 Easier way to use

更小的驱控一体体积 (325*235*135)，搬运安装更简单；内置工艺可视化、教导式操作，让工艺调试变得更简单。

Smaller integrated drive and control volume (325*235*135), easier transportation and installation; built-in process visualization and teaching operation make process debugging easier.

3、更高的性能指标 Higher performance indicators

控制与伺服使用OCM通信方式，具有更高的通信速率与带宽，伺服响应更灵敏；采用动力学前馈控制算法，机器人具有更好的动态响应特性，轨迹精度平均提高15%，到位稳定时间缩短30%。

The control and servo use OCM communication method, which has higher communication speed and bandwidth, and the servo response is more sensitive; using dynamic feedforward control algorithm, the robot has better dynamic response characteristics, the trajectory accuracy is increased by an average of 15%, and the stable time in place is shortened by 30%.

基本配置参数

Basic configuration parameters

| 名称 NAME | 驱控一体 INTEGRATED DRIVER AND CONTROL | 外部存储支持 EXTERNAL STORAGE SUPPORT | U盘 U DISK |
|-----------------------------------|--|---------------------------------------|--|
| 可搭配机器人 Robot which can be used | 拓星辰全系 Full series of TOPSTAR | 急停模式 Emergency stop mode | 软件急停/硬件急停 Software emergency stop/hardware emergency stop |
| 用户编程 User programming | 编程语言 Programming language | 脚本语言 Scripting language | 体积 Volume |
| | 后台程序 Background program | 最大5个 Maximum 5 sets | 重量 Weight |
| | 程序容量 Program capacity | 1G | 电源线长 Power cable length |
| | 单程序最大行数 Maximum number of lines in a single program | 2000 | 本体线长 Body line length |
| 外部通信 External communication | EtherCAT | 1个 (预留) 1 pcs (Reserved) | 电源规格 Power Specifications |
| | EtherNET | 1个 1 pcs | 最大功耗 Maximum power consumption |
| | RS232 | 1个 1 pcs | 使用环境温度 Ambient temperature |
| | RS485 | 1个 1 pcs | 存储环境温度 Storage temperature |
| | 高速DI High-speed DI | 2个 2 pcs | 使用湿度 Use humidity |
| | 输入点数 Input point | 系统8个用户32个 System 8 and users 32 | IO输入 IO input |
| | 输出点数 Output point | 系统8个用户16个 System 8 and users 16 | IO输出 IO output |
| 运动控制 Movement control | 控制轴数 Number of control axes | 4个+2个 (脉冲扩展) 4+2 (pulse extension) | 示教器 Teach pendant |
| | 位置环刷新频率 Position loop refresh frequency | 10K | PC软件 PC software |
| | 运动方式 Mode of motion | 点到点、直线、圆弧、拱形、跟踪、样条曲线、平滑过渡、S型加减速 | 操作方式 Operation method |
| | 速度设定 Speed setting | 电机转速、各轴加速度、负载率监控 | 示教器 Teach pendant |
| | 支持电机 Support motor | 100-750W, 绝对式编码器多摩川协议电机 | PC软件 PC software |

示教器参数 (选配)

Teach pendant parameters (optional)

| 品牌 BRAND | 拓斯达 TOPSTAR | 型号 MODEL | TSR600-7-0000 | 操作方式 OPERATION METHOD | 按键+触摸 KEYS + TOUCH |
|------------------------|-----------------------|--------------------------------------|---|--------------------------|--|
| 线长 Line length | 5m | 线显示/分辨率 display /resolution ratio | 8寸全彩显示 1024*768 8-inch full-color display 1024*768 | 特殊功能 Special function | 支持热插拔 Support hot swap |
| 规格尺寸 Standard sizes | 288*195*85 (mm)2kg | 通信 Communication | Ethernet、U盘 (FAT32) Ethernet、Udisk (FAT32) | 电源 Power | DC 24V(电柜供应) DC 24V(supplied by electric cabinet) |

X1 CONTROL CABINET

X1控制柜

X1控制柜电气接口介绍

Introduction to electrical interface of X1 control cabinet



1、高可靠性和高安全性 High reliability and safety

控制器平台集运动控制、PLC控制和网络化控制于一体，硬件采用多CPU架构，并内嵌毫秒级响应的安全电气回路，进而实现高可靠性和高安全性；

The controller platform integrates motion control, PLC control and networked control. The hardware adopts a multi CPU architecture and embeds a millisecond response safety electrical circuit to achieve high reliability and safety;

2、高速高精 High speed and high precision

控制器平台采用高精度纳米插补算法和多类型误差补偿算法，并针对SCARA机器人应用特点开发了基于加速度自适应的门型轨迹控制技术，门型节拍极限可达0.25s；

The controller platform adopts the high-precision nano interpolation algorithm and multi-type error compensation algorithm. According to the application characteristics of the SCARA robot, an acceleration adaptive gate trajectory control technology is developed. The gate beat limit can reach 0.25s;

3、高易用性 High ease of use

控制器平台采用基于作业系列的编程方式，并可根据客户需求定制中文编程指令和工艺应用界面，且内部集成了智能抓取、智能码垛、视觉跟踪、多机协同，以及安全协作等行业应用工艺包。

The controller platform adopts the programming method based on the operation series, and can customize the Chinese programming instructions and process application interface according to the customer's needs, and internally integrates the industrial application process packages such as intelligent capture, intelligent palletizing, visual tracking, multi machine collaboration, and security collaboration.

基本配置参数

Basic configuration parameters

| 名称 NAME | TRC04-021-11-01机器人控制柜 TRC04-021-11-01 ROBOT CONTROL CABINET | | 外部存储支持 EXTERNAL STORAGE SUPPORT | U盘 U DISK | |
|-----------------------------------|---|---|---|--|---|
| 可搭配机器人 Robot which can be used | 支持适配通用六关节、Delta、SCARA、四轴搬运、协作等各种结构的机器人 Support robots with universal six joint, Delta, SCARA, four axis handling, cooperation and other structures | | 急停方式 Emergency stop mode | 软件急停/硬件急停 Software emergency stop/hardware emergency stop | |
| 外部通信 External communication | EtherCAT | 1路，支持DC模式 Single channel, supporting DC mode | 基本参数 Basic parameters | 体积 Volume | 340x340x180(mm) |
| | EtherNET | 1路，全双工百兆网口，支持TCP/IP、ModbusTCP、OPC DA协议 Single channel, full duplex 100m network interface, supporting TCP/IP, ModbusTCP, OPC DA protocols | | 重量 Weight | 15kg |
| | RS485 | 1路，支持ModbusRTU协议 Single channel, supporting ModbusRTU protocol | | 电源线长 Power cord length | 5m |
| | CAN | 1路，支持CANOpen协议 Single channel, supporting CANopen Protocol | | 本体线长 Body cable length | 5m |
| | IO输入 IO INPUT | 16路数字量输入，或12路数字量输入和2路正交编码或脉冲计数，NPN型 16 channels of digital input, or 12 channels of digital input and 2 channels of orthogonal coding or pulse counting, NPN type | | 电源规格 Power specifications | 单相Single-phase AC220/230V (+10%—15%) 50Hz/60Hz |
| | IO输出 IO OUTPUT | 16路数字量输出，最大支持电流300mA，NPN 16 channels digital output, maximum supporting current 300mA, NPN | | 最大功耗 Maximum power consumption | 2100W |
| | 急停 Emergency stop | 2路急停输入，2路急停输出 2 channels emergency stop input and 2 channels emergency stop output | | 使用环境温度 Working environment temperature | 0℃~50℃ |
| 运动控制 Movement control | 联动插补 Linkage interpolation | 支持最大八轴的联动插补，最大支持三个附加轴控制 Support the linkage interpolation of up to eight axes, and support the control of up to three additional axes | 储存环境温度 Storage environment temperature | -30℃~70℃ | |
| | 高精度控制 High precision control | 支持高精度纳米插补，多种类的误差补偿技术，基于动力学的前馈功能 Support high-precision nano interpolation, various error compensation technologies, and feed forward function based on Dynamics | 使用湿度 Service humidity | 10%~85%RH 无凝露 10%~85%rh non condensing fog | |
| | 运动方式 Movement mode | 支持点到点、直线、圆弧、平滑过渡、拱形、样条曲线、S型加减速 Support point-to-point, line, arc, smooth transition, arch, spline, S-type acceleration and deceleration | 操作方式 Operation mode | 示教器 Teach pendant | TSR600-7-0000-A |
| | 编程方式 Programming mode | 支持LUA代码和G代码的混合编程，后台内嵌符合IEC61131-3标准的软PLC模块 Support mixed programming of lua code and G code, and embed soft PLC module conforming to IEC61131-3 standard in the background | | PC软件 PC Software | TopTeach |
| 扩展功能 Extended functions | 工艺功能 Process function | 支持工作区域、复杂码垛、机器视觉、传送带跟踪、传送带多机协同、注塑交互、冲压联机、智能分拣等工艺功能 Support process functions such as work area, complex palletizing, machine vision, conveyor belt tracking, conveyor belt multi machine collaboration, injection molding interaction, stamping online, intelligent sorting, etc | | | |
| | IO扩展 IO extension | 提供EtherCAT扩展模块，包括数字量、模拟量、温度等 Provide EtherCAT expansion module, including digital quantity, analog quantity, temperature, etc | | | |
| | 二次开发 Secondary development | 提供运动控制二次开发DLL库，应用于视觉集成 Provide motion control secondary development DLL library for visual integration | | | |

示教器参数（选配）

Teach pendant parameters (optional)

| 品牌 BRAND | 拓斯达 TOPSTAR | 型号 MODEL | TSR600-7-0000-A | 操作方式 OPERATION METHOD | 按键+触摸 KEYS + TOUCH |
|------------------------|-----------------------|--------------------------------------|---|--------------------------|--|
| 线长 Line length | 5m | 线显示/分辨率 display /resolution ratio | 8寸全彩显示 1024*768 8-inch full-color display 1024*768 | 特殊功能 Special function | 支持热插拔 Support hot swap |
| 规格尺寸 Standard sizes | 288*195*85 (mm)2kg | 通信 Communication | Ethernet、U盘 (FAT32) Ethernet、Udisk (FAT32) | 电源 Power | DC 24V(电柜供应) DC 24V(supplied by electric cabinet) |

SELF-DEVELOPED VISION

自研视觉

TopView 2.0

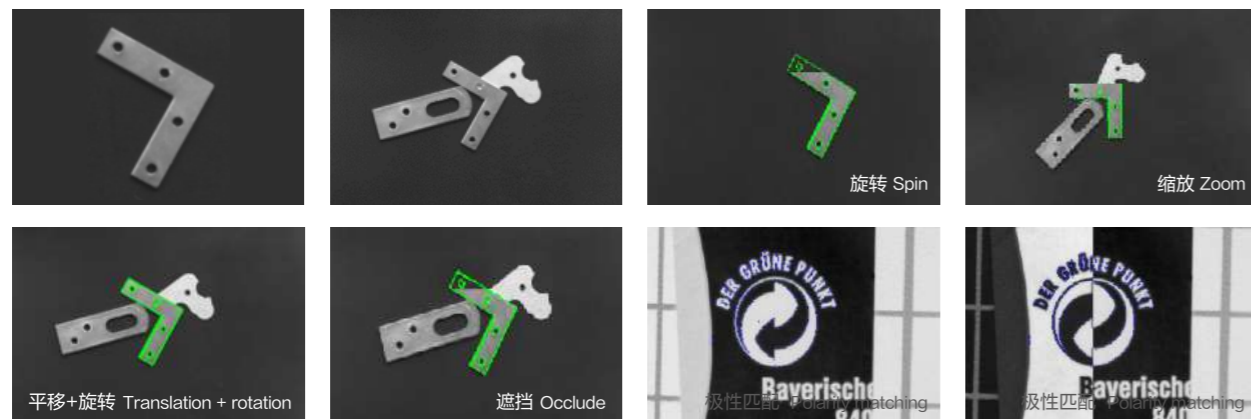
- 微内核+模块化设计
 - 可拖拽图形化工程搭建，无需编程
 - 自研加速框架，快速高精度视觉定位
 - 多目标搜索与分类
 - AI智能分拣
 - 可应用于对位贴合，机器人引导，电子抓取等常用工业场景
- Microkernel + modular design
 - Drag and drop graphical project construction without programming
 - Self-developed acceleration framework, fast and high-precision visual positioning
 - Multi-target search and classification
 - AI intelligent sorting
 - It can be applied to common industrial scenes such as positioning and lamination, robot guidance, electronic grasping, etc.



模板匹配功能

Template matching function

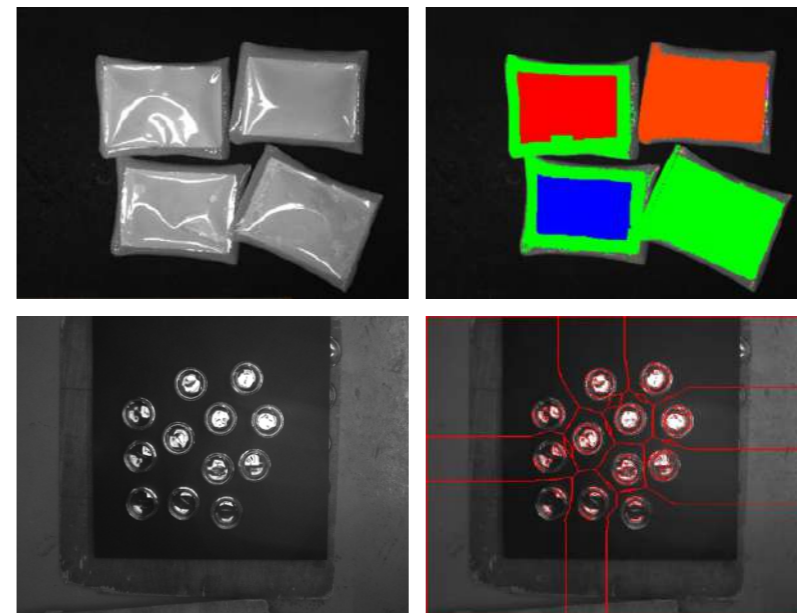
- 灵活选择灰度图像或边缘轮廓作为模板进行匹配
 - 允许目标图像存在旋转（0-360°），遮挡（0-50%），缩放（0.5-1.5倍）
 - 支持极性，抗非线性光照变化与杂波，内置提前截止加速算法
 - 内置SSE与OpenMP加速
 - 支持多目标识别，匹配耗时小于20ms，定位精度1pixel
- Flexible selection of grayscale images or edge contours as templates for matching
 - Allow the target image to have rotation (0-360°), occlusion (0-50%), zoom (0.5-1.5 times)
 - Support polarity, anti-non-linear illumination changes and clutter, built-in early cut-off acceleration algorithm
 - Built-in SSE and OpenMP acceleration
 - Support multi-target recognition, matching time is less than 20ms, positioning accuracy is 1pixel



斑点分析功能

Spot analysis function

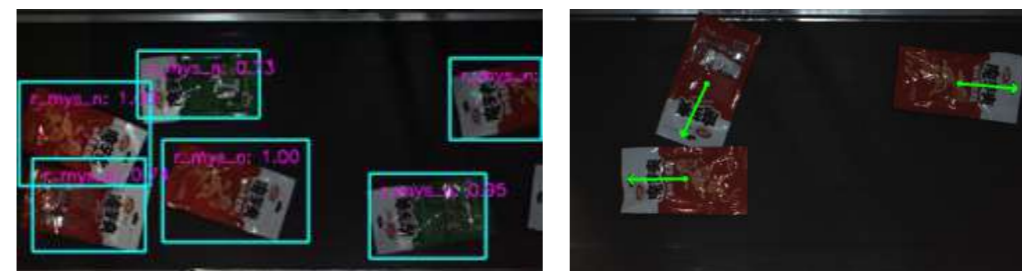
- 通过合理阈值对柔性目标进行分割，输出中心位置
 - 通过形态学运算解决目标粘连和部分堆叠问题
 - 匹配耗时小于10ms，定位精度1pixel
 - 支持多工具嵌套，实现快速分割和计数
- The flexible target is segmented by a reasonable threshold, and the center position is output
 - Solve the problem of target adhesion and partial stacking through morphological operations
 - Matching time is less than 10ms, positioning accuracy is 1pixel
 - Support multi-tool nesting, realize fast segmentation and counting



AI智能分拣

AI intelligent sorting

- 更快的部署时间，识别准确率高达99.9%
 - 适应各种光照环境和成像质量
 - 可以判断来料朝向、可实现堆叠来料抓取
- Faster deployment time, recognition accuracy rate up to 99.9%
 - Adapt to various lighting environments and image quality
 - Can judge the direction of incoming materials, and can realize stacking incoming materials grabbing



TOP-STUDIO OFFLINE PROGRAMMING SOFTWARE

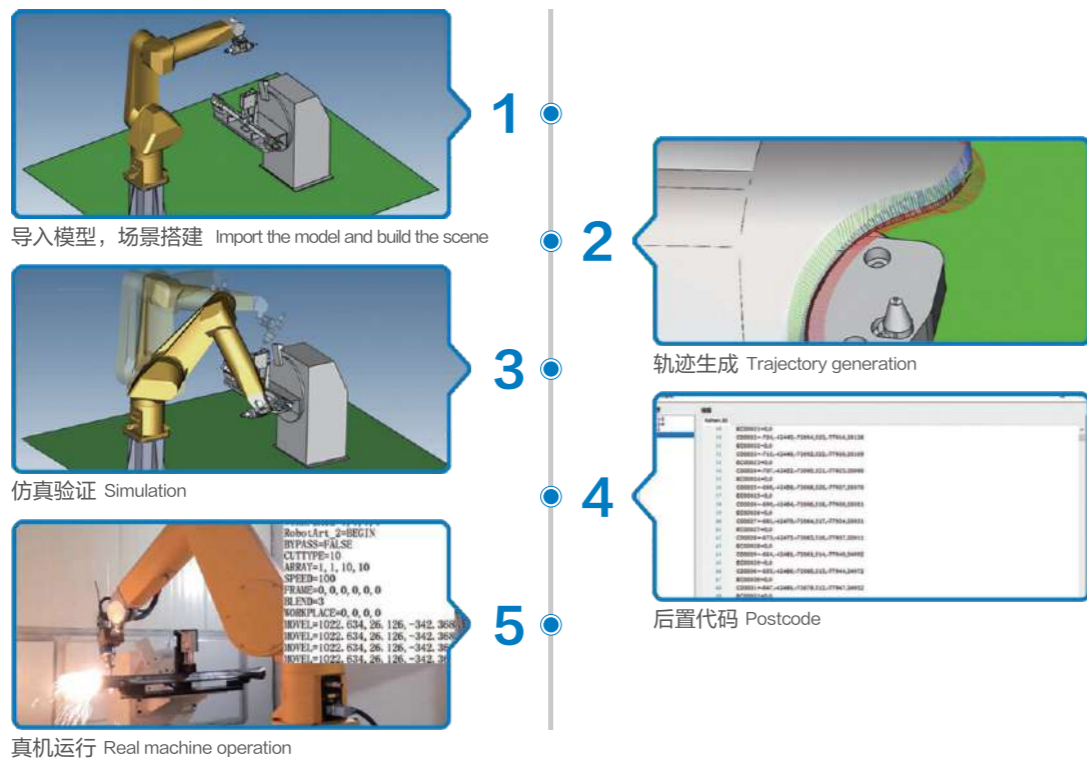
Top-studio 离线编程软件

应用模式介绍

Application mode introduction

软件支持ABB、KUKA、topstar 机器人仿真验证，以及模型导入，轨迹生成，后置代码于一体，最终至真机运行。

The software supports ABB, KUKA, topstar robot simulation verification, as well as model import, trajectory generation, post-code integration, and finally run on the real machine.



应用案例

Applications

打磨/抛光——轨迹历史记忆，支持多次调整

Polishing/polishing-track history memory, support multiple adjustments

打磨工艺需要根据实际情况对轨迹进行多次修改，直至达到满意的效果。Top-studio利用独有的参数化轨迹设计专利技术，将轨迹的每个步骤进行参数化处理，当修改结果达不到要求时，可回退至任意步骤进行调整，后续轨迹自动计算，使轨迹的修改和迭代效率大幅度提升。

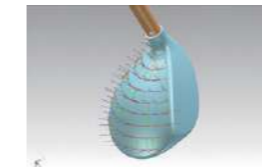
The polishing process needs to modify the trajectory several times according to the actual situation until a satisfactory result is achieved. Top-studio uses the unique patented technology of parametric trajectory design to parameterize each step of the trajectory. When the modified result fails to meet the requirements, it can go back to any step for adjustment, and the subsequent trajectory is automatically calculated to make the trajectory. The efficiency of modification and iteration has been greatly improved.



仿行程与干涉

Imitation travel and interference

Top-studio核心功能 Top-studio core functions



轨迹的生成与编辑

Trajectory generation and editing

九大类生成轨迹方式，上百个轨迹参数，数十个参数化轨迹修改方式。

Nine types of trajectory generation methods, hundreds of trajectory parameters, and dozens of parameterized trajectory modification methods.

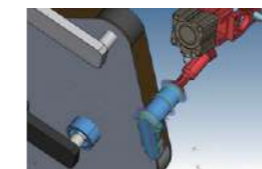


可达空间实时计算

Real-time calculation of reachable space

软件不仅可以计算机器人的法兰位置的可达空间，也可以计算机器人末端执行器的可达空间，让您的工作站设计和轨迹规划更加真实高效。

The software can not only calculate the reachable space of the flange position of the robot, but also calculate the reachable space of the robot end effector, making your workstation design and trajectory planning more realistic and efficient.



外部工具编程

External tool programming

机器人常见工作方式有一下两种：①手持工具，零件固定；②手持零件，工具固定；

第二种称为外部工具，变成更复杂。Top-studio提供了外部工具、变位工具、连续TCP、工件坐标系等配合使用，使手持零件不再复杂。

There are two common working methods of robots: ①Hand-held tools, fixed parts; ②Hand-held parts, fixed tools; The second type is called external tools and becomes more complex. Top-studio provides external tools, displacement tools, continuous TCP, workpiece coordinate system, etc. to cooperate with each other, so that hand-held parts are no longer complicated.

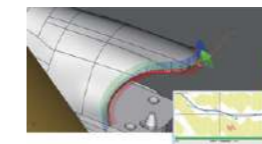


碰撞检测

Impact checking

仿真时，开启碰撞检测功能，可以模拟检测出机器人在运动时和周边的零部件、设施的碰撞情况，并通过高亮线和输出碰撞信息加以提示。

During simulation, the collision detection function is turned on to simulate and detect the collision between the robot and the surrounding parts and facilities when the robot is in motion, and prompt it by highlighting the line and outputting collision information.



轨迹优化

Trajectory optimization

可把轨迹中的奇异点、轴限位、不可达、碰撞等信息反映在界面上，通过鼠标拖动自动避让，快速获得理想轨迹，提高工作效率。

The singular point, axis limit, unreachable, collision and other information in the trajectory can be reflected on the interface, and the mouse can be dragged to automatically avoid the ideal trajectory quickly and improve work efficiency.



外部轴联动

External axis linkage

通过外部轴联动的插值功能，用户可优化外部轴位置以实现沿整个刀具路径的平滑运动，而不需要手动修改每个机器人之间的目标位置控制点。

Through the interpolation function of the external axis linkage, the user can optimize the position of the external axis to achieve smooth movement along the entire tool path, without the need to manually modify the target position control point between each robot.

SCARA ROBOT APPLICATION CASE

SCARA机器人应用案例

手机充电宝金属接触元件的上料组装设备

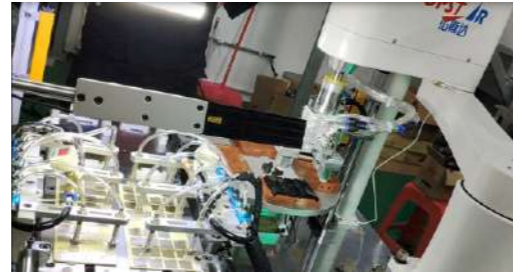
Loading and assembling equipment for metal contact components of mobile phone charging treasure

- **项目概述:** 采用SCARA机器人搭配视觉对金属接触元件自动组装;
- **产品:** 手机充电宝金属接触元件;
- **核心配置:** TS650-03款SCARA、自主研发TOP视觉;
- **工艺流程:** 上料气缸上料 → 视觉拍照 → 机器人取料机器人将产品埋入转盘充电宝壳位置 → 对埋入的产品定位检测。
- **Project Overview:** Using SCARA robots with vision to automatically assemble metal contact components
- **Product:** Mobile phone charging treasure metal contact element
- **Core configuration:** TS650-03 SCARA, independently developed TOP vision
- **Process flow:** loading cylinder → visual photography → robot picking, the robot embeds the product in the position of the turntable charging case → detects the positioning of the embedded product.

项目效果 Project effect

1. 重复定位精度: $\pm 0.05\text{mm}$
2. 周期快: 2s/pcs
3. 省人: 设备节省人力2人
4. 兼容性强: 可对不同产品抓取埋入

1. Repeat positioning accuracy: $\pm 0.05\text{mm}$
2. Fast cycle: 2s/pcs
3. Manpower saving: equipment saves 2 manpower
4. Strong compatibility: different products can be captured and embedded



电路板金属IC电子元件埋入组装

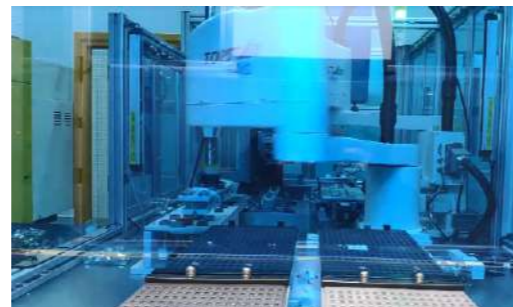
Circuit board metal IC electronic components embedded assembly

- **项目概述:** 采用SCARA机器人代替人工对电路板金属IC元件进行自动上料埋入;
- **产品:** 电路板金属电子IC元件;
- **核心配置:** TS650-03款SCARA;
- **工艺流程:** 气缸上料 → 1号SCARA机器人将超声波剪切完的产品夹取放置工位1上 → 2号SCARA再将码盘中的料放置工位1上 → 注塑机械手取料 → 放入注塑机注塑成型。
- **Project Overview:** Use SCARA robots instead of manual to automatically load and embed the metal IC components of the circuit board;
- **Product:** Circuit board metal electronic IC components;
- **Core configuration:** TS650-03 SCARA;
- **Process flow:** Cylinder loading → No. 1 SCARA robot clamps the ultrasonically cut product and places it on station 1 → No. 2 SCARA then places the material in the code plate on station 1 → injection molding machine robot takes the material → puts in injection molding machine for injection molding.

项目效果 Project effect

1. 重复埋入精度: $\pm 0.02\text{mm}$
2. 省人: 设备节省人力2-3人
3. 周期: 1.5s/pcs

1. Repeated embedding accuracy: $\pm 0.02\text{mm}$
2. Manpower saving: equipment saves 2-3 manpower
3. Cycle: 1.5s/pcs



取暖器制热片自动上下料

Automatic loading and unloading of heating fins of heater

- **项目概述:** 采用SCARA机器人对取暖器制热片进行自动上下料;
- **产品:** 五金取暖器制热片;
- **核心配置:** 拓星辰1号 SCARA, 直角坐标机器人, 震动盘;
- **工艺流程:** 震动盘来料 → 直角坐标系机械手排版取料放置中转台 → SCARA机械手取料放置上位机通讯指定高度的位置进行合模加工。
- **Project Overview:** Using SCARA robots to automatically load and unload heating fins;
- **Product:** Hardware heater heating film;
- **Core configuration:** TOPSTAR I SCARA, Cartesian coordinate robot, vibration plate;
- **Process flow:** Vibrating plate incoming material → Cartesian coordinate system manipulator typesetting, reclaiming and placing the turntable → SCARA manipulator reclaiming and placing the upper computer communication at the specified height position for mold clamping processing.

项目效果 Project effect

1. 组装精度: $\pm 0.015\text{mm}$
2. 机械手数据处理: 定制版Modbus通信做主站, 10ms数据刷新, 支持浮点数运算;
3. 省人: 节省2-3人的人力

1. Assembly accuracy: $\pm 0.015\text{mm}$
2. Manipulator data processing: customized Modbus communication as master station, 10ms data refresh, support floating point calculation
3. People-saving: save 2-3 people's manpower



下料机: 传感器 (4条传送带, 8s)
Unloader: Sensor (4 conveyor belts, 8s)

纸壳包装贴合应用设备

Paper packaging laminating application equipment

- **项目概述:** 采用SCARA机器人代替人工实现纸壳柔性贴合工艺;
- **产品:** 包装纸壳;
- **核心配置:** TS650-03款SCARA 自主研发TOP视觉;
- **工艺流程:** Tray盘上料A → 四轴机械手自动取料B → 双相机进行拍照定位来料A → 机器人精准贴合AB → 传送带流入下一个工位。
- **Project Overview:** Using SCARA robots instead of manual implementation of the paper shell flexible bonding process;
- **Product:** packaging paper case
- **Core configuration:** TS650-03 SCARA independently developed TOP vision;
- **Process flow:** Tray tray loading A → four-axis manipulator automatic reclaiming B → dual cameras to take pictures and positioning incoming materials A → robots accurately fit AB → conveyor belt flows into the next station.

项目效果 Project effect

1. 精准贴合: $\pm 0.04\text{mm}$
2. 双相机拍照定位: 来料放置更精准, 兼容多尺寸产品
3. 周期: 2s/pcs
4. 省人: 可节省人力1-2人

1. Precise fit: $\pm 0.04\text{mm}$
2. Dual camera camera positioning: more accurate placement of incoming materials, compatible with multi-size products
3. Cycle: 2s/pcs
4. Manpower saving: 1-2 people can be saved



纸盒包装: 31pcs/min 精度正负0.3mm
Carton packaging: 31pcs/min, accuracy plus or minus 0.3mm

核酸检测鼻/咽拭子包装解决方案

Nucleic acid testing nasal/pharyngeal swab packaging solution

- **项目概述:** 核酸检测鼻/咽拭子包装解决方案;
- **产品:** 鼻/咽拭子;
- **核心配置:** 拓星辰TR003-HP600;
- **工艺流程:** 摆放拭子到设备载具→载具运行到裁切工位→自动裁切尾料→机器人夹取拭子→机器人自动摆放到包装线体→载具退回到上料位。
- **Project Overview:** Nucleic acid testing nasal/pharyngeal swab packaging solution
- **Product:** Nasal/pharyngeal swabs
- **Core configuration:** TR003-HP600
- **Process flow:** Placement of swab to equipment carrier→carrier moves to cutting station→automatic spur cutting→robot grabs the swabs→ robot automatically places the swabs to the packaging line → carrier returns to the loading position.

项目效果 Project effect

1. 重复定位精度: $\pm 0.01\text{mm}$
 2. 省人: 3-5人
 3. 周期: 2.5s/次, 每次抓取20支
1. Repeat positioning accuracy: $\pm 0.01\text{mm}$
 2. Labor saving: 3-5 people
 3. Cycle: 2.5s/cycle, 20 pcs per grab

特点 Features

1. 产出高: 生产线效率提成(升)10%
 2. 回本快: 3个月可收回投入成本
1. High output: 10% improvement in production line efficiency
 2. Fast payback: 3 months of cost return



SIX-AXIS ROBOT APPLICATION CASE

六轴机器人应用案例

轻合金上下料项目

Light alloy loading and unloading project

- **项目概述:** 机器人于冲压机取件, 进行后端冷却, 切边, CNC加工等工序;
- **产品:** 轻合金;
- **核心配置:** 拓星际R142-10-A 机器人;
- **工艺流程:** 1号机器人于压铸机取件 → 放置冷却台 → 2号机器人取件放置切边机 → 3号机器人取件放置CNC加工 → 4号机器人取件下料。
- **Project overview:** The robot picks up parts from the punching machine, performs rear-end cooling, trimming, CNC machining and other processes;
- **Product:** light alloy;
- **Core configuration:** TOPSTAR R142-10-A robot;
- **Process flow:** No. 1 robot picks up parts from die-casting machine → Places cooling table → No. 2 robot picks up parts and places the trimming machine → No. 3 robot picks up parts and places CNC processing → No. 4 robot picks up parts and unloads.

项目效果 Project effect

1. 机器人重复精度: $\pm 0.02\text{mm}$
 2. 周期: 16s/4pcs (16秒每模产品)
 3. 省人: 3-4人
1. Robot repeat accuracy: $\pm 0.02\text{mm}$
 2. Cycle: 16s/4pcs (16 seconds per product)
 3. Save people: 3-4 people

特点 Features

使用机器人, 可提高生产效率及品质, 降低人工成本。
The use of robots can improve production efficiency and quality, and reduce labor costs.



键盘托盘上下料项目

Keyboard tray loading and unloading items

- **项目概述:** 机器人配合机械手进行键盘组装;
- **产品:** 键盘托盘;
- **核心配置:** 拓星际R092-06-A 机器人、注塑机、机械手;
- **工艺流程:** 机器人取键盘托盘放置定位台 → 机械手于注塑机取键帽放至键盘托盘上 → 机器人取成品下料。
- **Project Overview:** The robot cooperates with the linear robot to assemble the keyboard;
- **Product:** keyboard tray;
- **Core configuration:** TOPSTAR R092-06-A robot, injection molding machine, linear robot;
- **Process flow:** the robot takes the keyboard tray and places it on the positioning table → the linear robot takes the keycap from the injection molding machine and puts it on the keyboard tray → the robot takes the finished product and unloads the material.

项目效果 Project effect

1. 机器人重复精度: $\pm 0.02\text{mm}$
 2. 周期: 35s/pcs
 3. 省人: 1-2人
1. Robot repeat accuracy: $\pm 0.02\text{mm}$
 2. Cycle: 35s/pcs
 3. save people: 1-2 people



化妆品瓶组装项目

Cosmetic bottle assembly project

- **项目概述:** 机器人配合视觉取化妆品瓶配件进行组装;
- **产品:** 化妆品瓶;
- **核心配置:** 拓星际R092-06-A 机器人、组装线设备、视觉;
- **工艺流程:** 化妆品瓶配件上料视觉拍照定位 → 机器人取件进装配。
- **Project overview:** robots cooperate with vision to take cosmetic bottle accessories for assembly;
- **Product:** cosmetic bottle;
- **Core configuration:** TOPSTAR R092-06-A robot, assembly line equipment, vision;
- **Process flow:** cosmetic bottle accessories feeding visual camera positioning → robot picks up the parts for assembly.

项目效果 Project effect

1. 机器人重复精度: $\pm 0.02\text{mm}$
2. 省人: 1-2人
3. 周期: 11s/pcs

1. Robot repeat accuracy: $\pm 0.02\text{mm}$
2. Save people: 1-2 people
3. Cycle: 11s/pcs

特点 Features

机器人配合视觉实现自动抓取配件组装, 提高生产效率, 提高生产品质。减少人工成本。

The robot cooperates with the vision to realize the automatic grasping of accessories and assembly, which improves production efficiency and production quality.Reduce labor costs.



纸质餐盘下料码垛

Unloading and palletizing of paper dinner plates

- **项目概述:** 2台大机器, 1台小机器人, 配合两台成型机, 两台切边机, 完成产品的成型、转移、切边, 成品码垛;
- **产品:** 纸质餐盘;
- **核心配置:** ABB6700机器人, 拓星际R142-10-A 机器人;
- **工艺流程:** 机器人于成型机取料放置干燥机 → 再从干燥机取料放置切边机 → 再从切边机取产品下料码垛。
- **Project overview:** 2 large machines, 1 small robot, combined with two forming machines and two trimming machines, complete product forming, transfer,trimming, and palletizing of finished products;
- **Product:** paper dinner plate;
- **Core configuration:** ABB6700 robot, TOPSTAR R142-10-A robot;
- **Process flow:** the robot takes the material from the forming machine and places the dryer → then takes the material from the dryer and places the trimming machine → then takes the product from the trimming machine, unloads and pallets.

项目效果 Project effect

1. 机器人重复精度: $\pm 0.05\text{mm}$
2. 省人: 4-5人
3. 周期: 10s/模 (单模12pcs产品)

1. Robot repeat accuracy: $\pm 0.05\text{mm}$
2. Save people: 4-5 people
3. Cycle: 10s/mold (12pcs single-mode product)

特点 Features

使用机器人集成, 提高生产效率及品质, 将人工从高温等恶劣环境替换出来。

Use robot integration to improve production efficiency and quality, and replace labor from harsh environments such as high temperatures.



客户服务——服务平台

CHAPTER OF SERVICE

拓斯达小程序、售后服务、全球服务网点
Topstar Applet、After-Sale Service、Global Service Net

TOPSTAR APPLET

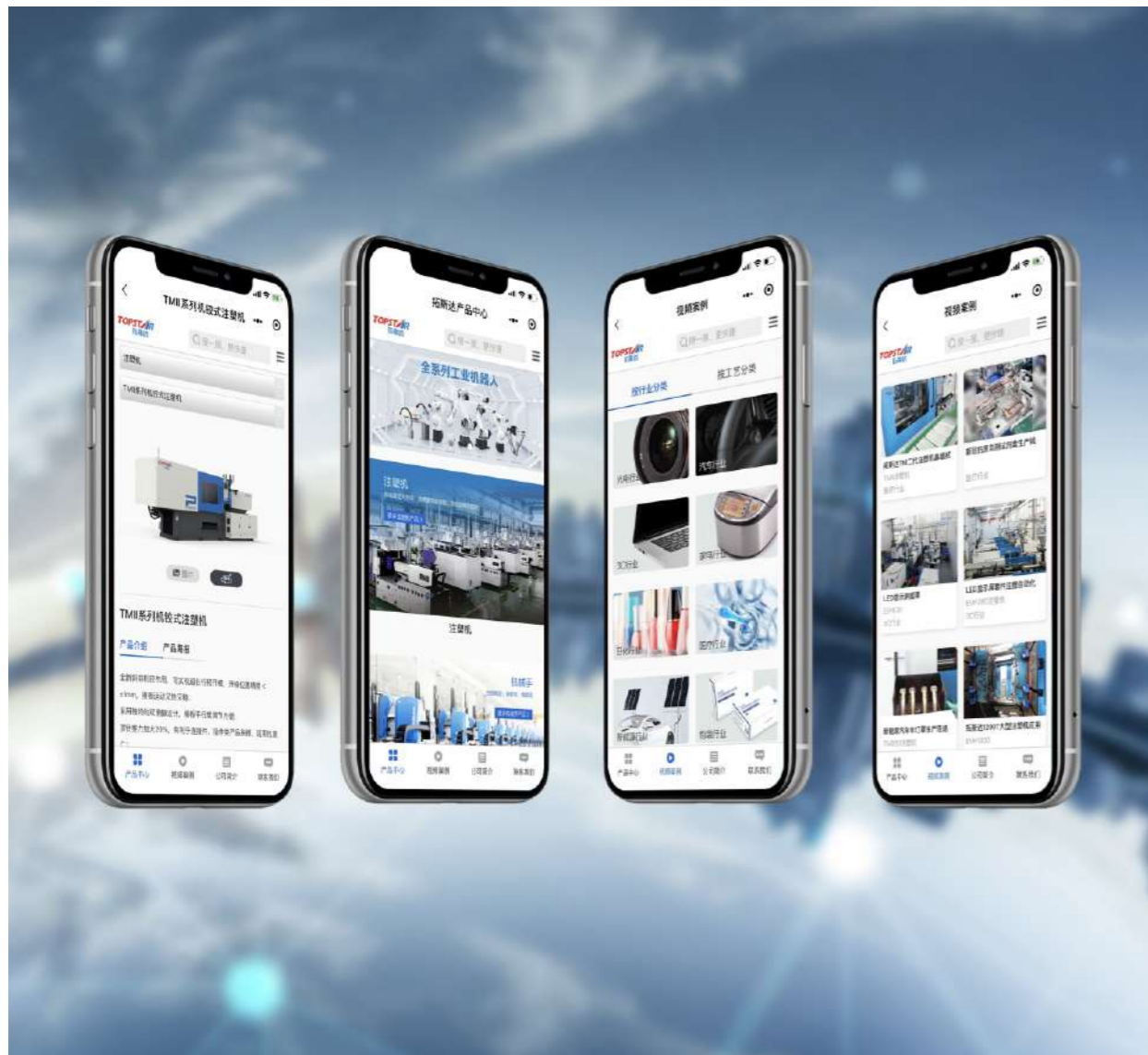
拓斯达小程序

拓斯达小程序-量身打造企业自动化解决方案

Topstar Applet - Tailored to enterprises for automation solutions

拓斯达小程序是拓斯达科技于2022年推出的基于微信小程序的移动信息平台。用户只需通过微信小程序搜索“拓斯达”，就可以随时随地观看百余家企业自动化应用生产线，涵盖塑胶、五金、装配等几十种行业工艺应用案例。

Topstar Applet is a mobile information platform based on Wechat Applet, which is launched by Topstar Technology in 2022. Just by searching "Topstar" through Wechat Applet, users can watch anytime and anywhere more than a hundred enterprises' automation production lines covering dozens of application cases in the industries of plastics, hard wares, assemblies, etc.






拓斯达小程序的功能

Features of Topstar Applet

| | | |
|---|--|--|
|  <p>快速查找 操作简单，架构清晰，搜索关键词即可查找相关产品及视频案例；</p> <p>Quick search Easy operation, clear structure, search keywords to find relevant products and video cases.</p> |  <p>方便转发 基于微信小程序移动平台，可通过微信进行分级界面及所选产品进行转发分享；</p> <p>Convenient forwarding Based on WeChat applet mobile platform, the graded interface, and selected products can be forwarded and shared through WeChat.</p> |  <p>资料齐全 集产品图片、参数、海报、简易手册、案例视频于一体的信息平台，产品资料实时更新。</p> <p>Complete information An information platform integrating product pictures, parameters, posters, simple manuals, and case videos, with real-time updates of product information.</p> |
|---|--|--|

拓斯达小程序的便利

Convenience of Topstar Applet

| | | |
|--|---|--|
|  <p>拿出手机，走上百家企业车间考察 Investigate workshop in hundreds of enterprises through the video</p> <p>在视频案例中可轻松查看近百家车间自动化生产线现场视频，最真实的应用案例对比借鉴，轻松解决预约客户上门观看的诸多不便和往返时间成本，迅速高效了解项目功能；</p> <p>In the "video case" you can easily view nearly a hundred of workshop automation production line site videos. compare with the most real case, solve the problem about long distances to visit, save the time and efficient understand Project function.</p> |  <p>各种工艺自动化都能找到借鉴 You can find various samples about automation solutions.</p> <p>无论您是注塑、压铸、冲压、组装、喷涂、精雕、CNC上下料、打磨抛光等的代工序，还是整厂自动化解决方案，都能在拓斯达小程序找到合适的项目视频和产品资料；</p> <p>Find the right project video and product information in Topstar Applet, include different procedure such as injection molding, die casting, stamping, assembly, spraying, carved, CNC loading unloading, polishing, whole plant automation solution and so on.</p> |  <p>一部拓斯达产品资料库 E-catalog of TOPSTAR product.</p> <p>除了解方案和视频，您还可以通过拓斯达小程序全面了解拓斯达产品设备信息，节省您查找产品资料的时间。</p> <p>In addition to solutions and videos, you can also fully understand the Topstar products and equipment information through the Topstar Applet, saving you time to find product information.</p> |
|--|---|--|

如何访问拓斯达小程序?

How to access Topstar Applet?

您可以通过以下任何方式进入拓斯达小程序：
You can enter Topstar Applet in the following two ways:

| | |
|---|--|
|  <p>使用微信扫描左边小程序二维码即可进入； Use WeChat to scan the QR code of the applet on the left to enter.</p> |  <p>微信小程序搜索“拓斯达”即可进入。 Use WeChat to search the applet "Topstar" to enter.</p> |
|---|--|

AFTER-SALE SERVICE

售后服务



快速响应

快速响应客户的需求，收集客户的现场信息并记录故障，给出保养合理化建议；

Fast Response

Quickly respond to customer needs, collect customer site information and record the failure, give reasonable maintenance Suggestions;



快速到达

快速到达客户现场，进行设备维修；

Fast Arrival

Quickly arrive at customer site for equipment maintenance;



快速处理

快速处理，帮助客户第一时间将设备调整到最佳状态；

Fast Processing

Quickly processing to help customers adjust the equipment to the best state in the first time;



快速验收

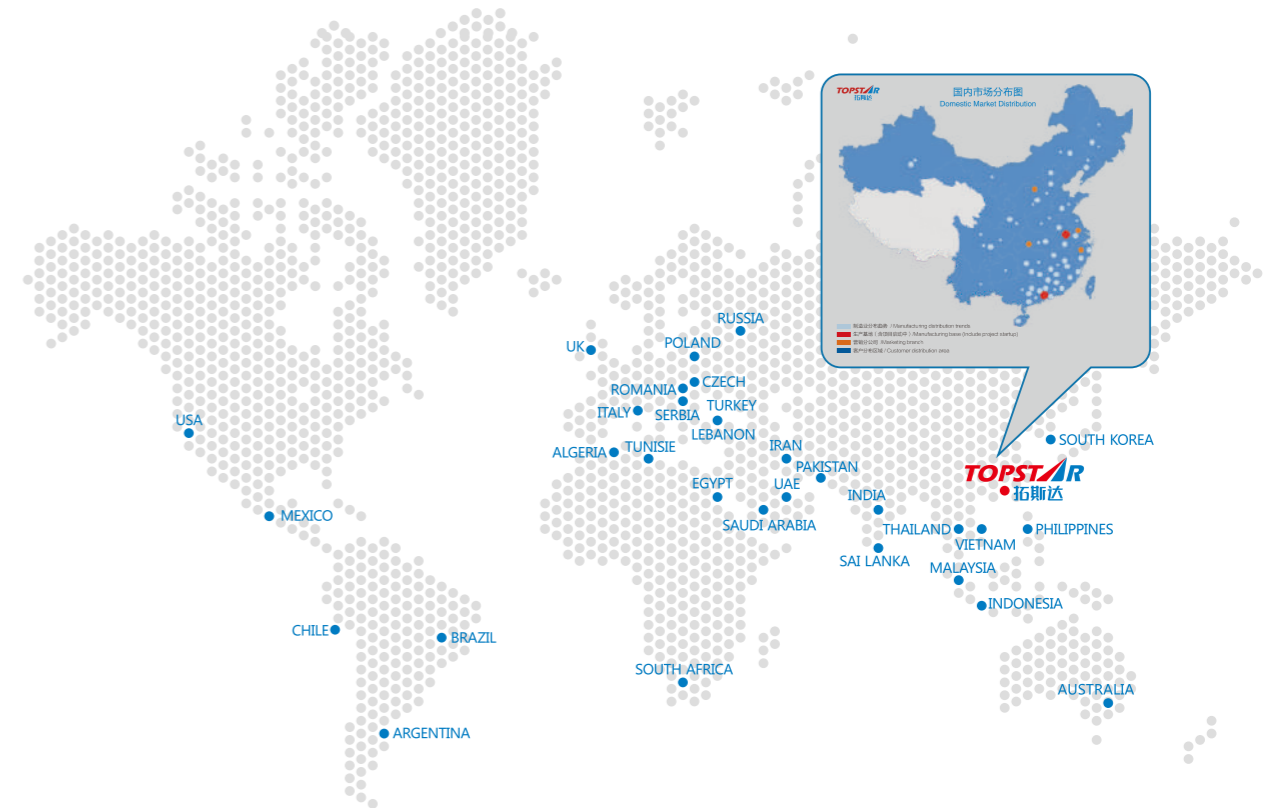
快速完成服务项目验收。

Fast Acceptance

Quickly complete the service project acceptance.

GLOBAL SERVICE NET

全球服务网点



SINCERELY APPRECIATE

衷心感谢

超过15000家客户见证并长期支持

Over 15000 customer have witnessed TOPSTAR growth and long supports

