



## ROBOTICS FOR COMPETITIONS | SECONDARY SCHOOL

# STEM CODING ROBOMISSION

Engineered for Speed, Precision and High Performance

With the new STEM Coding RoboMission Set, you're ready to jump into the WRO categories RoboMission and Starter with fischertechnik! This robotics kit includes everything you need for exciting competitions and challenging tasks – all while building essential STEM skills. Equipped with powerful encoder motors for robust drive and precise positioning, durable steel axles, and adjustable gear stages, you can fine-tune your robot for any requirement – whether it's speed or precision. The robot's intelligent color sensors and specialized RGB color sensor allow for precise navigation, all controlled by the high-performance TXT 4.0 controller. Programming through the Robo Pro Coding app is both accessible and flexible, with an intuitive Blockly interface for beginners and Python programming for advanced users. Fine-tuning with C/C++ lets you optimize down to the last millisecond for ultimate performance. Video tutorials help you get started. With this set, you're not just learning to build and program robots – you're developing real problem-solving skills and preparing for future challenges!

### WHERE TO USE

Please note that this building kit is designed specifically for use in **robotics competitions** and does not include any teacher support materials or lesson plans.

The set contains all the necessary building blocks and technical components to **construct a robot capable of detecting and moving obstacles**.

The STEM Coding Robo Mission kit was developed for the **RoboMission category in the World Robot Olympiad** (for more information about WRO, visit [wro.association.org](http://wro.association.org)).

# Build, code & win!

The Ideal Components for Building Your Success.



## **TXT 4.0 Controller - Controls your robot**

- 8 Universal inputs
- 4 Counting inputs
- 4 Motor outputs, alternatively 8 individual outputs
- 3 Servo outputs
- Touch Display
- 2 6-Pin sockets for connecting additional 3.3V I<sup>2</sup>C sensors
- Graphic or Text-based programming with Python in ROBO Pro Coding app



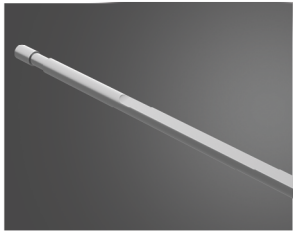
## **Encoder Motor - Power for robust drive and precise positioning**

- Powerful geared motor with a built-in magnetic encoder
- Particularly suitable for robotics competitions
- Enables precise and fast movement over distances

## **Robo Pro Coding App**

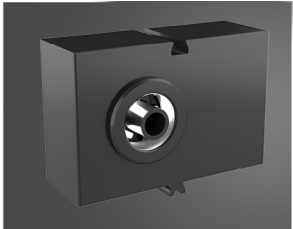
The TXT 4.0 Controller is programmed using the Robo Pro Coding App. This multilingual software offers both graphical programming and a text-based alternative with Python. Users can select from various learning levels—beginner, advanced, and expert—to match their skill level. Program examples are provided, and user-created programs can be saved locally on the device or stored online in the cloud. This enables version control and easy sharing of programs between users through cloud storage. The interface test feature allows for quick testing of actuators and sensors. The software is compatible with Windows, Linux, macOS, and mobile devices (Android or iOS).





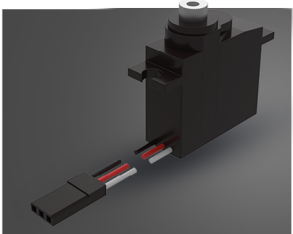
### **Steel Axles - Durable, Slip-Resistant, and Optimized for Powerful Torque Transfer**

- Robust and durable to withstand high levels of stress and wear
- Slip Prevention – Special surface design on the axle minimizes slipping
- Torque Transfer – Ensures secure, positive torque transfer to the wheels



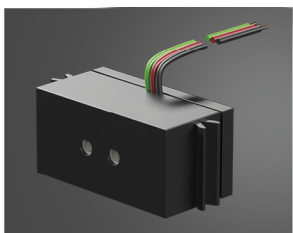
### **RGB color sensor - Color sensor with integrated light source**

- Versatile I2C color sensor for robotics competitions
- RGBW (red, green, blue, white) values with adjustable integration time
- PWM adjustable LED source
- Multiple sensors can be operated simultaneously on one controller



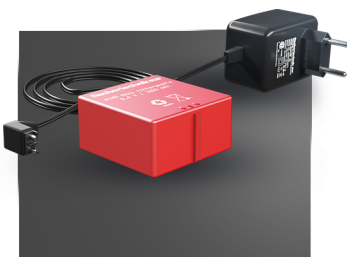
### **Digital Servo – Reliable Control for Secure Obstacle Management**

- Durable metal gearing for enhanced strength
- Adjustable range of +/- 90° for precise positioning



### **Color Sensors – Versatile Analog Sensing for Adaptive Navigation**

- Provides reliable analog values for line detection
- Two color sensors can be combined to create an analog line sensor
- Flexible mounting options for adjustable width

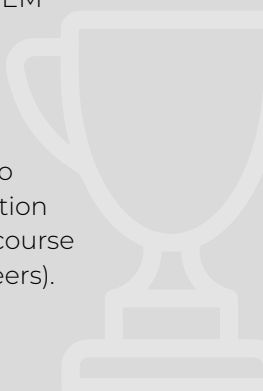


### **Battery and Charger – Replenishes battery power**

- 8.4V, 1800mAh NiMH battery pack
- Short circuit protection
- incl. charger

## **WRO & RoboMission**

The goal of these competitions is to inspire young people in computer science, robotics, STEM (science, technology, engineering, and mathematics), and the future, while also helping them develop essential social skills. Interested children and teenagers form teams, find a coach, work on the tasks of the current season, and participate in both regional and global competitions. The WRO competition offers four categories for participants aged 8 to 22. Participants are free to choose their robotics materials and manufacturers. The tasks range from programming a robot to navigating an obstacle course with precision and speed (RoboMission), to contributing to the solution of a real-world problem (Future Innovators), to autonomously driving robots through a specific course in the shortest possible time, competing against other teams on competition day (Future Engineers).



# STEM Coding RoboMission

## Facts



375 Components



Includes a TXT 4.0 Controller, a new RGB color sensor, two powerful encoder motors, a digital servo, and two analog color sensors as track sensors, along with rigid, slip-resistant steel axles, a battery and charger, many additional components for building a custom drive chassis, pre-assembled cables and a big and robust storage and transport box.



Block-based or text-based programming in the ROBO Pro Coding App (available for free download on iOS, Android, Windows, macOS, and Linux). Helpful tutorials for an easy start with STEM Coding RoboMission and the ROBO Pro Coding App can be found on the fischertechnik website.



|            |               |
|------------|---------------|
| Item No.   | 576109        |
| EAN        | 4048962549331 |
| Dim. (mm)  | 425x310x150   |
| Weight (g) | 2.580         |

## About fischertechnik

Hands-on STEM and robotics learning solutions for in-school and after-school - The future starts here!

fischertechnik offers innovative digital and analog STEM, Robotics and Maker learning solutions designed for cross-curricular use, from preschool through K-12 and into higher education. The hands-on learning approach enables students to grasp STEM (Science, Technology, Engineering, and Mathematics) concepts in a playful and tangible way. It also fosters the development of essential future skills, such as complex problem-solving, creative thinking, and emotional and social intelligence.

The fischertechnik portfolio spans a wide range of curriculum-aligned STEM topics, including robotics, artificial intelligence, maker, agile production simulation, renewable energy, electronics, mechanics, and more.

Our learning solutions include specialized construction kits, technical components like motors, sensors, and controllers, as well as comprehensive lesson plans with building and coding instructions, task and solution sheets, curriculum references, and professional development support.

For 60 years, our solutions have been successfully implemented in schools, universities, educational programs, and industrial companies worldwide.

Learn more about fischertechnik in-school and after-school: [www.fischertechnik.de/schools](http://www.fischertechnik.de/schools)



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