



Technical Characteristics of the Robotic Arm

TWinGo Basic

About Robot Logo Colors:

T = Theremino.

Win = most popular OS for IBM PC compatible.

Go = going.

About the colors of the robot logo:

Green, white and red are the colors of the Italian flag,
given that this robotic arm is an Italian project.



We chose to use colors even because there are Theremino
System logos which have a colored igloo as a registered
trademark.







Version: Basic

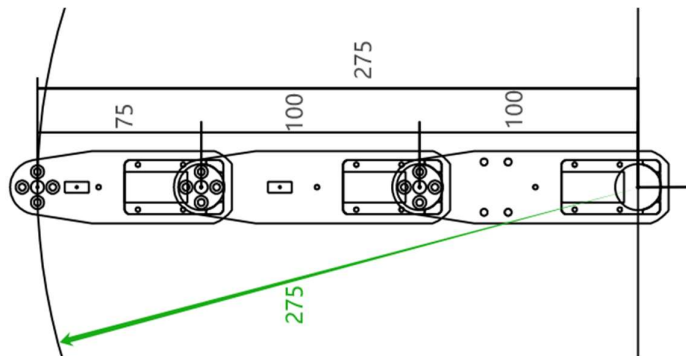
Programming:

- **Theremino Automation**
- **Theremino Blockly**
- **Microsoft VBnet**
- **Microsoft Visual Studio**
 - Any other language, running in Windows environment, can drive the TWinGo due to its Slot interface.

Kinematics:

- **Degrees of freedom (DOF): 4**
 - **Base (rotation): $\pm 180^\circ$**
 - **Inner arm: $0^\circ - 135^\circ$**
 - **Middle arm: $\pm 180^\circ$**
 - **Outer arm: $\pm 300^\circ$**
- **Robotic arm with rubber conductor as end-effector:**
 - **Material: soft and conductive rubber**
 - **Dimensions: 10mm x 10mm x 20mm**
 - **Weight: 735 grams**
- **Smooth and precise movements:**
 - **Positioning accuracy: ± 0.5 mm**
 - **Maximum speed: 100 mm/s**
 - **Maximum acceleration: 100 mm/s²**
- **Adjustable movement speed:**
 - **adjustment from 1% to 100%**

Dimensions:



- Height from the support base in maximum vertical extension: 390 mm
- Maximum range of action: 315 mm with touch End-Effector
- Base width: 110 mm
- Depth: 135 mm
- Weight: 730 grams



Materials:

- All structural parts are made of high density PVC, 10 mm thick
- Joint motors: they are smart motors with metal gears and output shaft on ball bearings.
- Joint motor fixing screws in chromed steel
- Screws, nuts, bushings are made of stainless steel
- End effector, rubber conductor

Power supply:

- Voltage: 7.5 V DC
- Current: 3A max
- Power supply: 100-220 VAC switching type
- Power connector: standard round 5.5mm with 2.1mm pins

Connectivity:

- USB 2.0
- Motor power and signal cable, 3-conductor standard Molex 5264 connector

Support software for normal use:

- Theremino Automation
- Theremino COBOT
- Theremino MOTORS

Software to support TWINGO programming and interaction with sensors and actuators.

To interact in real time with sensors and actuators a hardware interface called TSIO (Theremino Serial Input Output) is required, to be ordered separately:

- Theremino Slot Viewer data visualization in real-time
- Theremino Slot Viewer commands visualization in real-time
- Theremino Motors configured to manage the TSIO (10ADC and 10PWM)
- Theremino Signal Scope
- Theremino Data Logger
- Theremino Micro Video
- Theremino Automation in debug mode:
 - or variation in execution speed at the time of execution
 - or changing the zoom at runtime
 - or changing transparency at runtime
 - or viewing ongoing statements in real time



- or display of variable data in real time
- or single step
- or changing variables at runtime

Additional technical details:

- The TWinGo robotic arm is made of 10mm thick PVC, CNC cut.
- CNC cutting guarantees high precision and repeatability of the machined parts.
- This manufacturing process guarantees high precision and robustness, as well as high cost-effectiveness.
- Technical specifications are purely indicative and subject to change without notice.

Additional technical details:

- The TWinGo robotic arm is made of 10mm thick PVC, CNC cut.
- **Accessories:**
- Communication adapter with power switch and indicator light.
- USB type A to B cable (optional, supplied with the Controller)
- USB type A to micro cable
- Three-wire power and signal cable.
- Controller (supplied separately or integrated in the PRO version).
- User manual of the Theremino Automation programming language
- User manual for the Theremino Blockly programming language

Note: The manuals can be freely downloaded from the Internet in the most updated version.