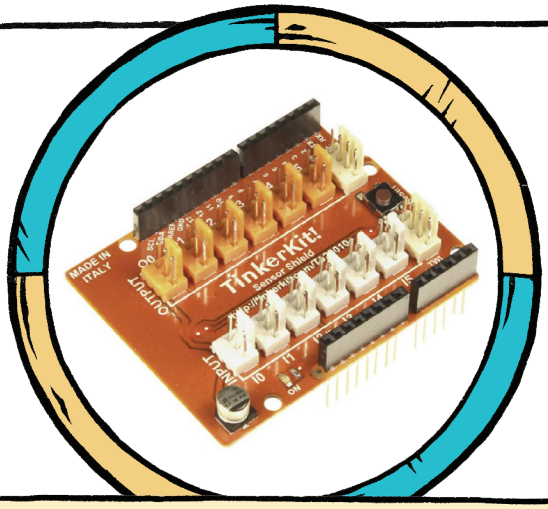
TOOL



ASSOCIATED SHEETS

Arduino boards
inputs and outputs

TINKERKIT SHIELD

Allows an easy connection for Tinkerkit sensors

Ease of use: simple
Necessay hardware: a Tinkerkit sensor or actuator, and a Tinkerkit cable

The term "Tinkerkit" includes a family of sensors and actuators that can be easily wired to an Arduino board with special cables and a suitable shield. The cables include three wires, a ground wire (black), a 5-volt power wire (red), and a data wire (orange).

How to use it

The Tinkerkit shield plugs into the top of the Arduino board. It has several special connectors. The combination Tinkerkit shield and Tinkerkit cables and Tinkerkit sensors makes it possible to quickly and easily connect sensors to the Arduino board.

For the Uno version, the shield offers 6 inputs, white connectors, labelled I0, I1, ..., I5, and 6 outputs, orange connectors, labelled O0, O1, ..., O5.

The six inputs are physically connected to the six analog inputs of the card; I0 corresponds to A0, I1 to A1, ..., I5 to A5. When a sensor is connected to the I0 input of the shield, this sensor is actually connected to the analog input A0 of the arduino board.

The six outputs are physically connected to the six digital ports on the board that can generate a PWM output. The correspondence is as follows:

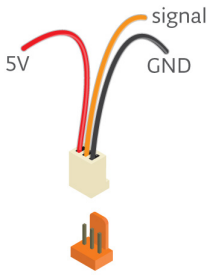
- O0 corresponds to the digital port 11;
- O1 corresponds to the digital port 10;
- O2 corresponds to the digital port 9;
- O3 corresponds to the digital port 6;
- O4 corresponds to the digital port 5;
- O5 corresponds to the digital port 3.

The digital and analog ports remain directly accessible on the black connectors at the edge of the shield, with their usual location. However, be careful not to use directly a port if a sensor is already connected to this port via the Tinkerkit shield.

Connection

The Tinkerkit material is easily connected to the Tinkerkit shield using the appropriate cables. Nevertheless, it is possible to connect a sensor to the shield without such a cable, or even to connect the sensor directly to the Arduino board by wiring the sensor using the conventions shown in the diagram below. When looking at the male connector from the front, with the tab on the top, the order of the wires should then be as follows:

- left wire (red): wire connected to the 5V port of the Arduino board;
- right wire (black): wire connected to the GND port of the Arduino board;
- middle wire (orange): wire connected to the chosen Arduino port, corresponding to an input or output of the shield depending of its use.



Warning: a connection error can damage your sensor or your card!

Coding

All Tinkerkit hardwares use the same library, which can be found on the Internet. Once this library is installed in the Arduino IDE software, examples of coding are available in the File menu, Examples, Tinkerkit.

Unfortunately, the Tinkerkit library no longer seems to be maintained, and there is no guarantee that the Tinkerkit material will remain available for a long time.