

## USER MANUAL

AUGUST 2016

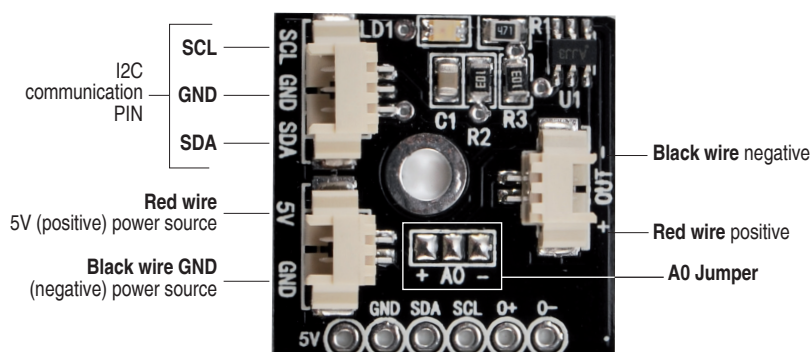
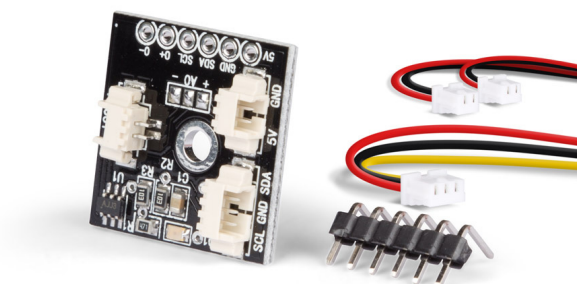
### DIGITAL TO ANALOG CONVERTER

#### MM110

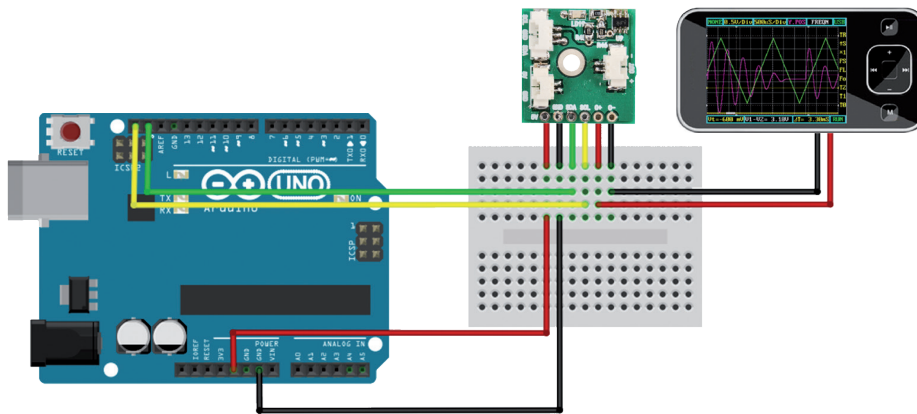
This breakout board hosts a MCP4725A0T-E/CH DAC (Digital to Analog Converter) integrated circuit, manufactured by Microchip, and capable of a 12-bit resolution. It integrates an EEPROM and has a I<sup>2</sup>C-Bus connection available (the address may be selected via the A0 jumper, by setting it to + or -; the other two bits from the bus' address are internally fixed, thus you may connect the same bus to two DACs at most). The integrated circuit is powered by means of a single voltage, with a value between 2.7 and 5.5 volts (in our board it operates by means of the 5 V applied between the 5V and GND contacts). It has the rail-to-rail function available on the output, thus it may supply from 0 to 5 volts.

The internal EEPROM allows to save the input configuration by means of the same I<sup>2</sup>C interface. The non-volatile memory allows the DAC to keep the input data, in case of blackout, so to represent the voltage corresponding to the analog output, once that a power source is supplied.

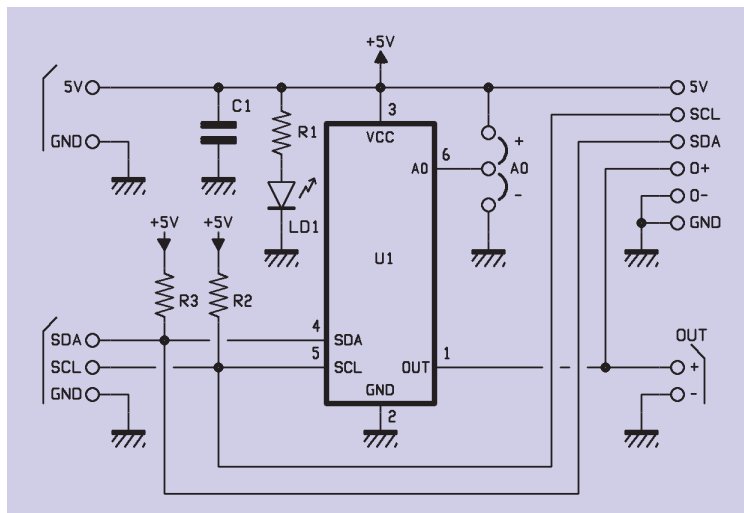
The data connections for power supplies and outputs are available, even in this board, and they are both on the sides, and on the spacing 2.54mm bonding pads, to which to apply a pin-strip.



The here introduced breakout board uses an integrated circuit that may be interfaced to Arduino, and that can be used along with it, thanks to the library that can be downloaded from the webpage concerning the product's data sheet, at [www.futurashop.it](http://www.futurashop.it). Therefore, in order to manage the module mounting a MCP4725A0T, from Arduino, as a first thing it is needed to copy the library into Arduino IDE's "libraries" directory, and then to boot the IDE and to open the example supplied. Now that the example is loaded, it is very important to take care of setting the module's address in the sketch. We would like to remind that it is possible to select two different addresses on the module, by means of the "A0" jumper. If it is closed towards "-", we will have to state that the address is 0x60, while if it is closed towards "+", the address will be 0x61. It is possible to connect the breakout board to Arduino, as shown in Fig. 1. The breakout board's SCL and SDA pins must be connected to the corresponding ones in Arduino board, that is also capable of supplying the power needed in order to operate the board. In the picture an oscilloscope is also connected, so to have a confirmation of the sinusoidal waveform that we will obtain by executing the sketch from Arduino.



*Wiring between Arduino and the breakout board containing DAC Microchip.*



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