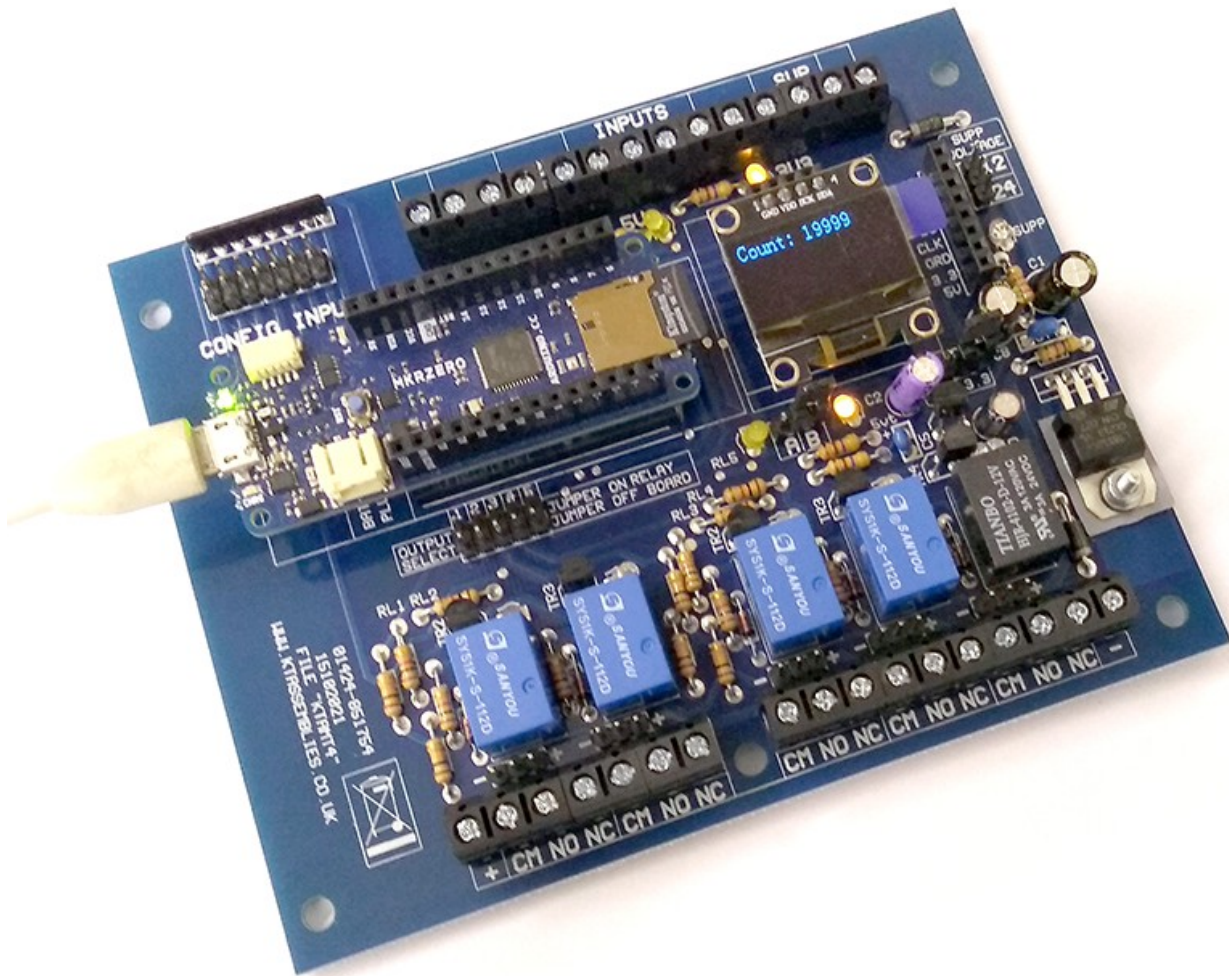


KT Assemblies MT4 Arduino MKR Compatible breakout board.



Ideal for projects such as lighting control, garden monitoring, home automation and more the MT4 breakout board provides an interface for analogue or switched input and switched output between MKR footprint Arduino boards and third party hardware. The MT4 also has an interface for OLED displays which use the I2c bus, and socketed connections for SD card interfaces using SPI. Many libraries already exist for Arduino boards which support this hardware, so user designed configurations can quickly and easily be realised.

Inputs to the Arduino MKR, be it the Zero, 1400 GSM, WAN or other variants with the same connection footprint, can be configured to use the screw terminals as digital inputs by applying the corresponding jumpers on the 'CONFIG INPUTS' header, or as analogue inputs when connected directly to the header pins. Configuration jumpers connect a pull-up resistor making digital inputs normally high, so that a low signal will activate them. Disconnecting a jumper allows reading of analogue values at the corresponding input (see **Pin Connections**). This makes it easy to connect a variety of switches or sensors to the Arduino MKR board.

Outputs are normally routed through switching relays which can switch up to 24v DC connections at 1 amp, useful for controlling external hardware such as motor control boards or LED lighting. Each of the five outputs are normally low, pulling up the relay when a high signal is output from the Arduino. Each relay has connections for both normally open and normally closed circuits. Individual outputs can also be isolated via the 'OUTPUT SELECT' header – removing the jumper will disconnect the relay output allowing the use of the Arduino header directly as the user sees fit.

The OLED display header has options for both positive-negative pin configurations and negative-positive configurations using the A/B header, making it flexible for a wide range of displays. The OLED supply voltage is also switchable between 3.3v and 5v via the 'DIS VOLT' jumper. The OLED data connection is made to the SCL/SDA pins of the Arduino for displays compatible with libraries such as the SSD1306.

For Arduinos which do not have an on-board SD card connection the MT4 provides an SPI interface for SD card daughter boards such as the Robodyn microSD interface. The chip select (CS) connection is made to the Arduino pin A6 which should be used when configuring the Arduino SD card library. As this is a standard SPI connection other SPI devices may also be connected here. PLEASE NOTE that the SD card logic level is 3.3v, the same as the MKR series of boards. 5v level shifting (as one might with an Uno board) is NOT required!

The MT4 accepts either a 12v DC or 24v DC supply voltage, although care must be taken to ensure that the 'SUPP VOLTAGE' jumper is correctly set, particularly when using a 24v DC supply. This is then routed through the Arduino MKR board, where both 5v and 3.3v DC supplies are available. See the Arduino documentation for more information on these connections.

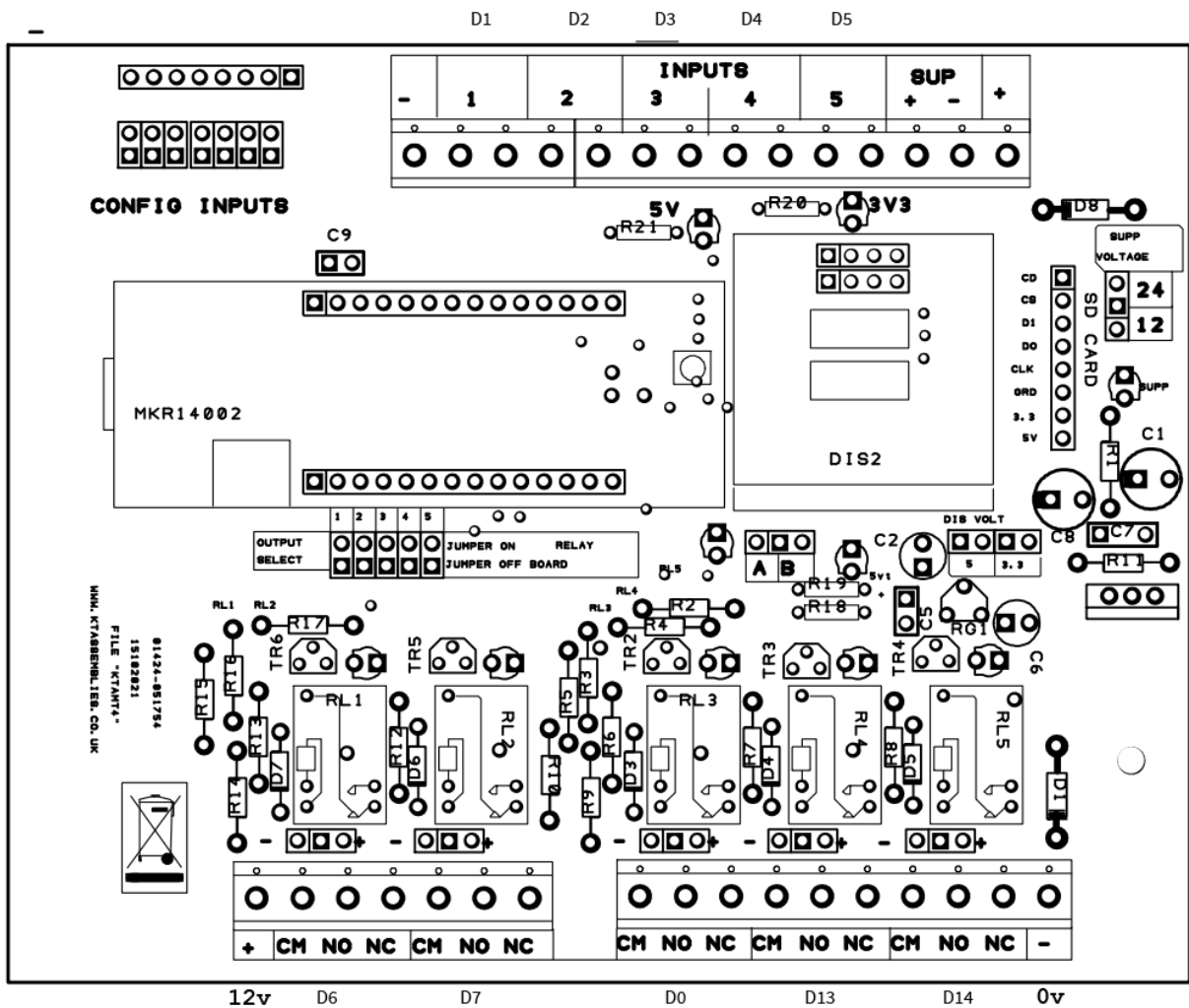
The MT4 can be supplied ready assembled, or in kit form for hobbyist assembly.

Pin Connections:

The five input terminals are connected to D1 – D5 of the Arduino respectively. The analogue inputs at pin headers 'CONFIG INPUTS' are connected to A0 – A5, although direct connection to the Arduino header is normally preferable.

Each of the five output terminals are connected to D6, D7, D0, D13 and D14 of the Arduino via a 24v DC relay. DO NOT ATTEMPT TO SWITCH MAINS VOLTAGES WITH THESE OUTPUTS. The relay outputs can be configured via the adjacent jumpers to switch either a negative supply, a 12v supply, or provide a clean pair of contacts by removing the jumper completely. 0V and 12v supplies are provided by the – and + terminals at either end.

The MOSI, SCK and MISO pins (D8, D9, D10) are connected to the SD CARD interface D1, CLK, D0 respectively. A6 is connected to CS (Chip Select)



Dimensions

The MT4 is approximately 130mm x 110mm in size and requires a clearance of at least 30mm, although clearance may vary depending on the installed Arduino.

For more information or technical support of the MT4 contact KT Assemblies via www.ktassemblies.co.uk or by phone +44 1424 851754

Please note that the MT4 is supplied as an interface board only, Arduino MKR products, OLED displays and SD card adapters are sold separately.

For help and support with Arduino or its libraries visit <https://arduino.cc>