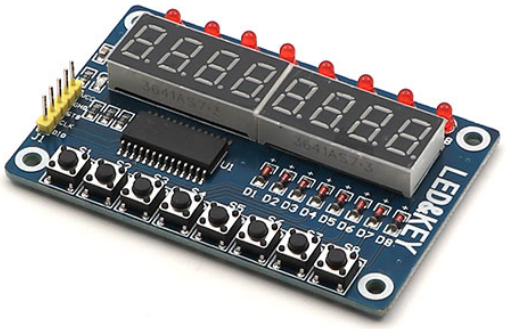
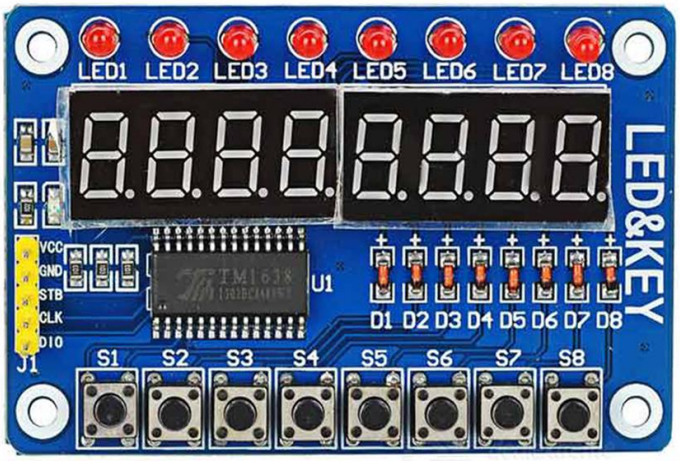
8-bit Digital LED & Buttons Electronic Module
Model:LED & KEY TM1638
User Manual

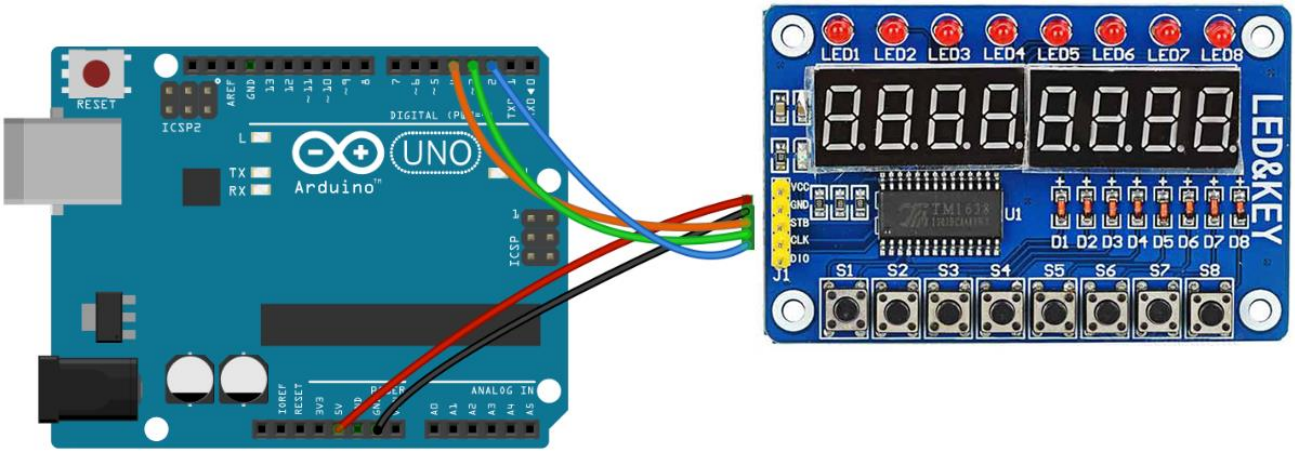


Control Panel TM1638:

Control panel with circuit TM1638 contains 8 LEDs, 8-segmentovek seven and eight switches. It is therefore suitable as a control while the display interface to the user. The big advantage of this control panel is just TM1638 circuit, which makes it possible to operate these 24 elements using only 5 wires, of which there are 3 data. If we want to control these elements normally, we would need 32 wires.



For a successful connection with Arduino board therefore we will connect these 5 cables. Connect to Vcc + 5V, GND to the ground, STB pin 4, CLK on pin 3 and DIO on pin 2. Data pins can, of course, with any change in the program exchanged for another vacant.



To successfully upload the sample code that you need to download and import a library TM1638 , instructions on how it is presented here . The sample code contains the beginning of the connection library, setting the numbers of pins for connection with Arduino and create an instance of the Library panel TM1638.In this subroutine setup is for testing communication settings over the serial line. Further, in an endless loop always create a variable to store the state of the button and the variable time to load the information about the number of seconds since the start of Arduino boards. Then, an example set of LEDs corresponding to pressed keys, and under this command is still in the comments given way to illuminate each LED. Next follows a translation switch that converts the value of the circuit TM1638 easier for us to the extent of 1-8, and below it is indicated if condition that checks for any key is pressed. So if you pressed a button, lists its number over the serial line and set to the 7-segment displays a message 1234abcd with a dot in the first digit. Otherwise prints on displays the time from the start of Arduino.

```
Copy to Clipboard // control panel with TM1638

// Connection Library
# include  <TM1638.h>

// Set pin numbers for connection to Arduino
# define DATA 2
# define CLOCK 3
# define STROBE 4

// Create an instance from the Library panel TM1638
TM1638 panel (DATA, CLOCK STROBE);

void  setup () {
   // communications through the serial port at 9600 baud
```

```
  Serial . begin ( 9600 );
}

void  loop () {
   // create a variable to hold the status button
  // in pure form (panelTlac) and to an extent 1-8 (button)
  byte panelTlac panel.getButtons = ();
   int Button = 0 ;
   // create a variable time and storing
  // the current time from activation Arduino
  // seconds
  long time = millis () / 1000 ;
   // LED switched on with a button
  // working for multiple buttons at once
  panel.setLEDs (((panelTlac & 0xF0 ) << 8 ) | (panelTlac & 0xF ));
   // to light the LEDs used this command and example:
  // setLED (0 for off / 1 to turn on), the number of LED
  /// panel.setLED (1, 4); // Turn on the fourth LED

  // Translation pure forms of the extent of 1-8
  switch (panelTlac) {
     case  1 :
      Button = 1 ;
       break ;
     case  2 :
      Button = 2 ;
       break ;
      case  4 :
      Button = 3 ;
       break ;
     case  8 :
      Button = 4 ;
       break ;
      case  16 :
```

```
        Button = 5 ;
         break ;
       case  32 :
        Button = 6 ;
         break ;
        case  64 :
        Button = 7 ;
         break ;
       case  128 :
        Button = 8 ;
         break ;
       default :
        Button = 0 ;
   }
   // If the button has been pressed,
   // write down his number over the serial line
   // and write out a sample screen character
   if (Button> 0 ) {
      Serial . Print ( "pressing the button" );
      Serial . Println (button) ;
      // extract samples of the characters in hex format
     // 1 means a dot in the first digit
     panel.setDisplayToHexNumber ( 0x1234ABCD , 1 );
   }
   // If no buttons are pressed,
   // prints to display the current time from the launch
   else {
      // statement numbers in the format: number, dot with the second character,
     // 0 for listing without zeros / 1 listing with zeros
     panel.setDisplayToDecNumber (cas , 2 , 0 );
   }
   // Pause for a clearer statement
   delay ( 500 );
}
```

After loading the program into the Arduino board and pressing we receive this statement:

```
copied to the clipboard by pressing 1
By pressing: 2
Press button: 3
Press button: 4
Press button: 7
```

Control panel with circuit TM1638 is combined with the library TM1638 is very good and simple way to provide convenient communication between the user and the device with 8 LEDs, eight seven-segment display and 8 switch buttons. And thanks to the connections using only three data lines left a lot of other pins for connection of other modules or sensors.

Schematic: