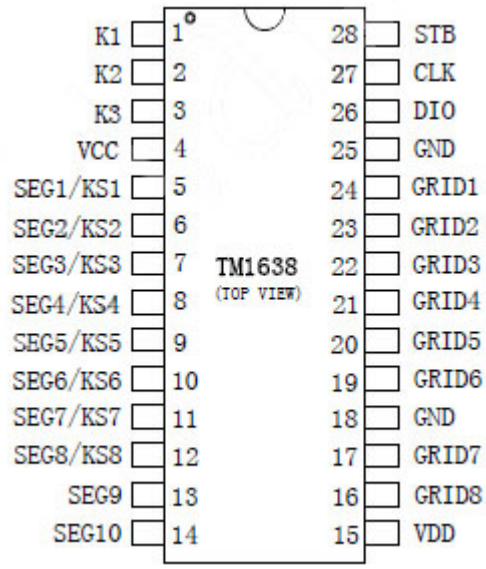
TM1638 library for Arduino

This is a 3-pin serial TM1638 chip library for Arduino. It supports a combined LED driver controller and key-scan interface.



Displaying numbers, characters and reading keys depends on the hardware wiring and is not part of this library. A fully operational example for a board with 8 7-segment displays, 8 dual color LED's and 8 buttons which uses this library is available here: JY-LKM1638.

Hardware

Connect power and 3 data pins to an Arduino board DIGITAL pins:

- VDD (Power 5V +/- 10%)
- GND (Ground)
- DIO (Bi-directional data input/output)
- STB (Chip select)
- CLK (Clock)

The following TM1638 pins should be connected to LED's and buttons in a matrix:

- K1~K3 (Key-scan data input)
- SEG/GRID (Output for LED matrix)

Supported Arduino boards

- All ATMega328P MCU:
    - Arduino UNO

    - Arduino Nano
- All ATMega32U4 MCU's:
    - Arduino Leonardo
    - Pro Micro
- All ATMega2560 MCU's:
    - Arduino Mega2560
- Other Arduino AVR MCU's may work, but are not tested.
- Other targets such as ESP8266/Lolin32 are not tested.
- The chip requires a 5V power supply and does not work at 3.3V.
- Check maximum regulator / diode current to prevent a burnout when using lots of LED's. Some boards can provide only 100mA, others 800mA max.
- The DIO data pin requires a bi-directional level converter when connecting to 3.3V digital pins.

Library dependencies

- None

Documentation

TM1638 Datasheet

Example

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Usage

Initialization

```
// Include TM1638 library
#include "TM1638.h"

// Connect display pins to the Arduino DIGITAL pins
#define DIO_PIN   2
#define SCL_PIN   3
#define STB_PIN   4

// Create TM1638 object
TM1638 tm1638(DIO_PIN, SCL_PIN, STB_PIN);
```

Display on/off

```
// Turn display off
tm1638.displayOff();

// Turn display on
tm1638.displayOn();
```

Turn all LED's off

```
// Turn all LED's off
tm1638.clear();
```

Get key-scan

```
// Get 32-bit key-scan
uint32_t keys = tm1638.getKeyScan();
```

Write display register

```
// Write segment LED's to the first display register
// The LED's turned on depends on your hardware SEG/GRID connections
// Experiment with the registers 0x00..0x0F value 0x00..0xff to display numbers
// and characters, for example:
tm1638.writeDisplayRegister(0x01, 0x01);
```