QS30-1 Nixie Tube Module

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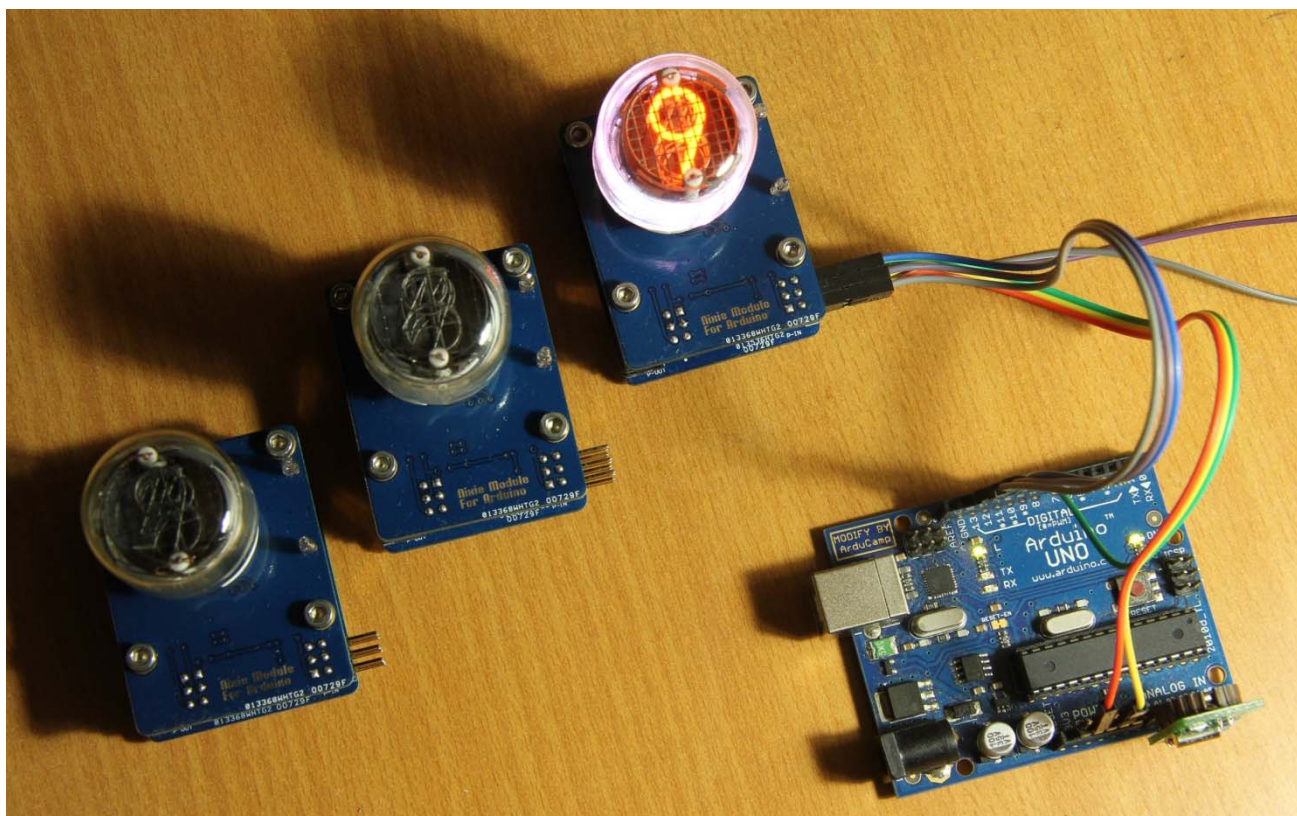
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| Warning |
| --- |
| The voltage on board is over 170v DC when working. Do NOT touch it if you do not know what you are doing. It is strongly recommended to make a cover on the board to avoid electric shock. |

This module is designed for nixie tube QS30-1/SZ-8. Combined with classic nixie tube, ceramic tube basement, gold-plated PCB, RGB background LED, QS30 module can be applied in varies of applications, presenting colorful effects. It is an all-in-one design. Boosted circuit, driver, and plug sockets are integrated. Several modules can be plugged in serial for customized needs. This makes the controlling much easier, especially for Arduino, and other similar open-source platforms. Users can focus on the presentation and application, no need to worry about the voltage management or connections.

FEATURES

- Classic nixie tube, module QS30-1/SZ-8
- Serial Expansibility
- RGB background LED
- Integrated boosted circuit
- Ceramic tube basement
- Driven by Serial-in controller
- Gold-plated PCB
- DC supply voltage: 12V
- Power supply current: 150mA per module
- Extra 5V DC out for controller board
- Open source library and sample code for Arduino
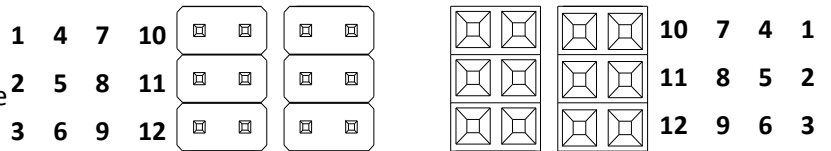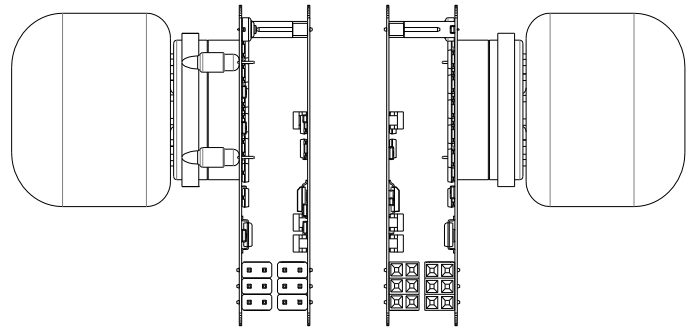
PINNING

PIN	SYMBOL	DESCRIPTION
INPUT (on the RIGHT side, plugs)		
1	DIN	DS, serial data input
2	STCP	ST, storage register clock input
3	SHCP	SH, shift register clock input
4	OE	OE, output enable (active LOW), brightness control
5	GND	ground (0V)
6	5V out	5V power out (300mA Maximum)
7-9	12V in	12V power in
10-12	GND	ground (0V)
OUTPUT (on the LEFT side, sockets)		
1	DOUT	DOUT, serial data output
2	STCP	ST, storage register clock output
3	SHCP	SH, shift register clock output
4	OE	OE, output enable (active LOW), brightness control
5	GND	ground (0V)
6	N/A	
7-9	12V out	12V power out
10-12	GND	ground (0V)

Arduino Library

Host on: http://aguegu.github.com/nixie-tube/

Function Table

Function	Bit 15 MSB	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 LSB
■ LED OFF	X	1	1	1	X	X	X	X	X	X	X	X	X	X	X	X
□ LED white	X	0	0	0	X	X	X	X	X	X	X	X	X	X	X	X
■ LED magenta	X	1	0	0	X	X	X	X	X	X	X	X	X	X	X	X
■ LED cyan	X	0	1	0	X	X	X	X	X	X	X	X	X	X	X	X
■ LED yellow	X	0	0	1	X	X	X	X	X	X	X	X	X	X	X	X
■ LED blue	X	1	1	0	X	X	X	X	X	X	X	X	X	X	X	X
■ LED green	X	0	1	1	X	X	X	X	X	X	X	X	X	X	X	X
■ LED red	X	1	0	1	X	X	X	X	X	X	X	X	X	X	X	X
[ ] Dots off	X	X	X	X	0	0	X	X	X	X	X	X	X	X	X	X
[.] Dot	X	X	X	X	1	0	X	X	X	X	X	X	X	X	X	X
['] Single Quote	X	X	X	X	0	1	X	X	X	X	X	X	X	X	X	X
[:] Colon	X	X	X	X	1	1	X	X	X	X	X	X	X	X	X	X
[ ] Number Off	X	X	X	X	X	X	0	0	0	0	0	0	0	0	0	0
[0] Number 0	X	X	X	X	X	X	1	0	0	0	0	0	0	0	0	0
[9] Number 9	X	X	X	X	X	X	0	1	0	0	0	0	0	0	0	0
[8] Number 8	X	X	X	X	X	X	0	0	1	0	0	0	0	0	0	0
[7] Number 7	X	X	X	X	X	X	0	0	0	1	0	0	0	0	0	0
[6] Number 6	X	X	X	X	X	X	0	0	0	0	1	0	0	0	0	0
[5] Number 5	X	X	X	X	X	X	0	0	0	0	0	1	0	0	0	0
[4] Number 4	X	X	X	X	X	X	0	0	0	0	0	0	1	0	0	0
[3] Number 3	X	X	X	X	X	X	0	0	0	0	0	0	0	1	0	0
[2] Number 2	X	X	X	X	X	X	0	0	0	0	0	0	0	0	1	0
[1] Number 1	X	X	X	X	X	X	0	0	0	0	0	0	0	0	0	1

(1: high, 0: low, X: don't care)

There are 2 pcs of 74HC595 in serial on a single module. Display could be easily controlled by just controlling 74HC595, which also strengthen QS-30 module with Serial Expansibility.

Typical application
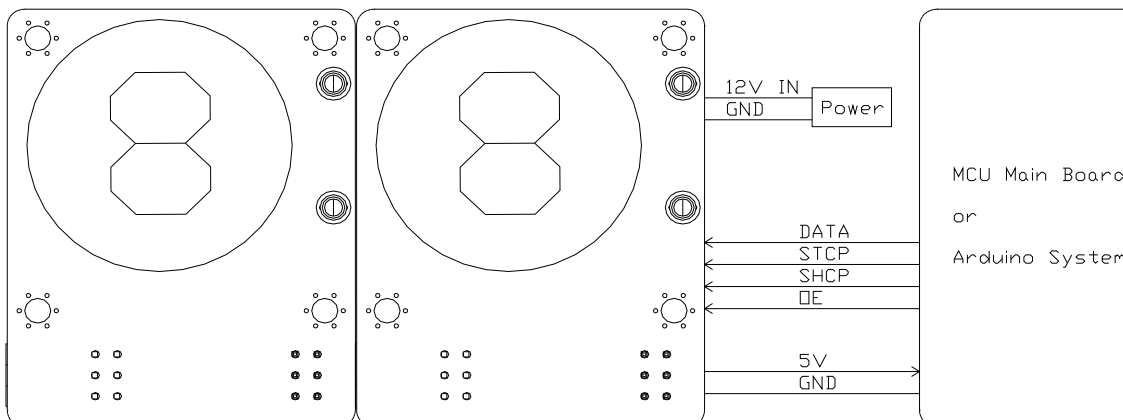
Self-Diagnosis

There is test button underneath the top layer of the QS-30 module. Even if there is no control board (like arduino), we can check whether the module is functional by pushing this button if there is 12v power supply. Number 6 would be displayed.

The display may be random if there is no controller connected.

More References:
- Datasheet of 74HC595
- Nixie Tube on Wikipedia.org