

NeoLoch

Inquisitor Core User Manual

Overview

The Inquisitor core module is the heart of NeoLoch's new IC testing system. The core system is designed to accept control modules, or blades as we like to call them. Each blade will have a different design configuration to allow for testing of a wide range of ICs with a pin count up to 40.

This manual covers the basics of the Inquisitor core module.

The tester also includes a number of new features, including:

- New easier to use layout.
- 2.1mm DC power jack for connecting to external power sources.
- 2 line by 16 character LCD screen.
- Faster PIC MCU operating at 16 MHz.
- Power switch.
- 40 Pin ZIF
- Multi-color Status LED
- Modular design.

This document details the operation of the default configuration of the IC tester as well as details on the device's operation for custom code design.

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1.0 Device Connection

1.1 J1 & JP1 – Power Connector

J1 is a 2.1mm barrel style DC power jack, allowing either a regulated 12V or unregulated 12V compatible power supply to be easily connected to the tester.

JP1 dictates if the supply voltage is a 12V regulated or unregulated supply. When in the unregulated configuration, the 12V regulator is used to convert the input voltage to 12V. When in the regulated position, the 12V relay is bypassed.

By default, assembled units have this jumper set to the unregulated voltage position.

If you are supplying your own 12V power source, make sure the power supply can supply at least 200ma.

1.2 LED 2 – 12 Volt Error LED

If the input voltage is greater than 12V, then this LED will be lite. The brighter the LED, the greater the voltage is over 12V. To get the best performance out of your tester, if this LED is noticeably bright, check your 12V input voltage before testing an IC.

1.3 LED 1 – Card Error LED

When the Inquisitor is powered, this LED indicates that a) a blade is not installed or b) the blade is in stalled incorrectly (reversed). Power off the unit and check the blades positioning.

1.4 LED 3 – Test Status LED

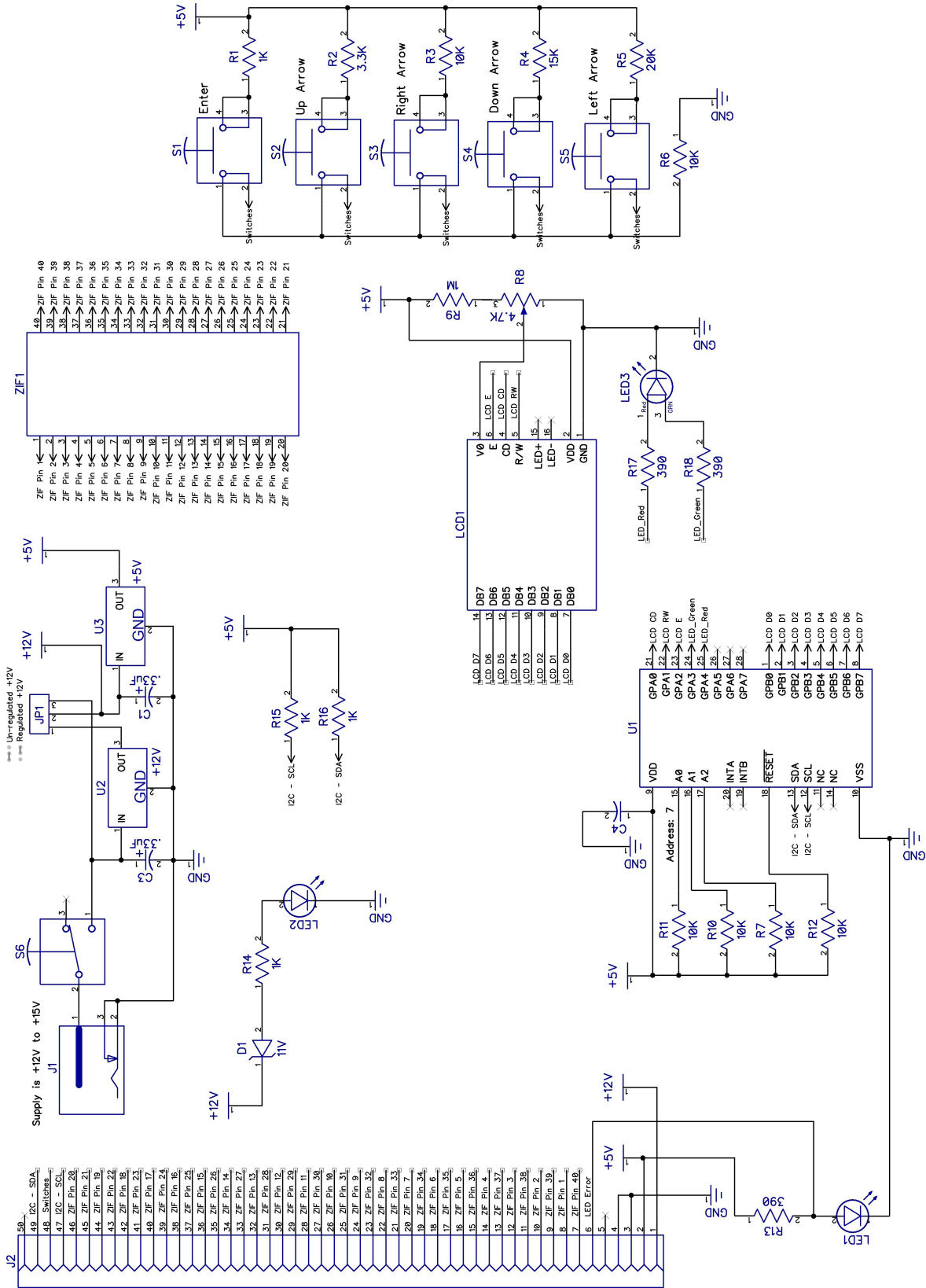
This LED indicates the current state of a test that's being performed. The different colors of this LED and their meaning are:

OFF	Unit has just powered up.
ORANGE	IC is being tested.
RED	IC tested bad.
GREEN	IC tested good.

1.5 ZIF 1 – Zero Insertion Force Socket

The ZIF socket provides an easy way to insert and remove ICs under test. Pin 1 of the ZIF socket is the pin closest to the lever of the ZIF socket.

4.0 Schematic



5.0 Card Edge Connector Pin Assignment

Pin #	Function	Pin #	Function
2	+5V	1	+12V
4	Ground	3	Ground
6	Card Error LED (Gnd to turn LED off)	5	Not Connected
8	ZIF Pin 1	7	ZIF Pin 40
10	ZIF Pin 2	9	ZIF Pin 39
12	ZIF Pin 3	11	ZIF Pin 38
14	ZIF Pin 4	13	ZIF Pin 37
16	ZIF Pin 5	15	ZIF Pin 36
18	ZIF Pin 6	17	ZIF Pin 35
20	ZIF Pin 7	19	ZIF Pin 34
22	ZIF Pin 8	21	ZIF Pin 33
24	ZIF Pin 9	23	ZIF Pin 32
26	ZIF Pin 10	25	ZIF Pin 31
28	ZIF Pin 11	27	ZIF Pin 30
30	ZIF Pin 12	29	ZIF Pin 29
32	ZIF Pin 13	31	ZIF Pin 28
34	ZIF Pin 14	33	ZIF Pin 27
36	ZIF Pin 15	35	ZIF Pin 26
38	ZIF Pin 16	37	ZIF Pin 25
40	ZIF Pin 17	39	ZIF Pin 24
42	ZIF Pin 18	41	ZIF Pin 23
44	ZIF Pin 19	43	ZIF Pin 22
46	ZIF Pin 20	45	ZIF Pin 21
48	Switches	47	I2C - SCL
50	Not Connected	49	I2C - SDA

6.0 Parts List

- 1 – PC board.
- 1 – 50 pin card edge socket.
- 1 – 28 pin DIP socket.
- 1 – 40 pin ZIF socket.
- 1 – 7805CT 1A +5V regulator.
- 1 – 7812CT 1A +12V regulator.
- 1 – MCP23017 port expander IC.
- 1 – LCD display.
- 1 – 3 pin straight header.
- 1 – 16 pin straight header.
- 1 – Jumper (Shunt).
- 1 – 11V Zener Diode
- 1 – DC power jack.
- 2 – 0.33 uF capacitor.
- 1 – 0.1 uF capacitors.
- 3 – 390 ohm resistors 1/8th watt.
- 4 – 1K ohm resistors 1/4th watt.
- 6 – 10K ohm resistors 1/4th watt.
- 1 – 3,3K ohm resistor 1/4th watt.
- 1 – 15K ohm resistor 1/4th watt.
- 1 – 20K ohm resistor 1/4th watt.
- 1 – 1M ohm resistor 1/4th watt.
- 1 – 4.7K potentiometer.
- 5 – PCB mount momentary contact switches.
- 1 – PC board mount slide switch.
- 2 – 1/4” screw and nut.
- 2 – 2x5 red LEDs.
- 1 – 2x5 bi-color LED.

Appendix A: Revision History

Revision A (9/2015)

- Initial release of this document

Revision B (11/2017)

- Corrected several spelling mistakes.