TESTER Assembly Instructions

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Introduction

This document describes the functional blocks of the cpNode and IOX boards input/output tester (TESTER) and how to assemble it.

Revision History

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Table of Contents

1. TESTER SYSTEM OVERVIEW 3
1.1. LED/BUTTON OPTIONS 4
2. BILL OF MATERIALS 4
3. ASSEMBLY 5

Table of Figures

FIGURE 1 TESTER COMPONENT LOCATION 3
FIGURE 2 LED - OPTION BUTTON JUMPERS 4

1. TESTER SYSTEM OVERVIEW

The input/output test fixture (TESTER) was designed to provide output and input devices for testing cpNode and IOX boards. Maximum flexibility was the goal for configuring the TESTER board. The TESTER consists of the following sections:

- 16 LEDs, common anode (sinking). wired as two groups of eight,
- 8 onboard push buttons.
- 8 header connectors for external inputs,
- 8 jumper blocks to assign data ports D12 to A5 to either LEDs (output) or onboard push buttons or sensors (input).
- Input common (ground) return for buttons/sensor inputs.
- External 5vdc connection to LEDs

Figure 1 TESTER Component Location

Data ports D4 to D11 connect directly to onboard LEDs, wired as current sinking (Common Anode).

Data ports D12 to A5 connect though the three pin BTN/LED jumper blocks. The jumper blocks provide the ability to individually assign a port to either and LED or input device. With the

1.1. LED/BUTTON OPTIONS

BTN/LED jumper in the BTN position, the push button and External Sensor Input header are connected to the data port.
The BTN return header provides the return path for the BTN/sensor devices, by attaching a connection between the BTN header and ground on the cpNode or IOX board.

The external sensor input header provides a connection point for external switch closures or digital logic level devices, such as infrared sensors.

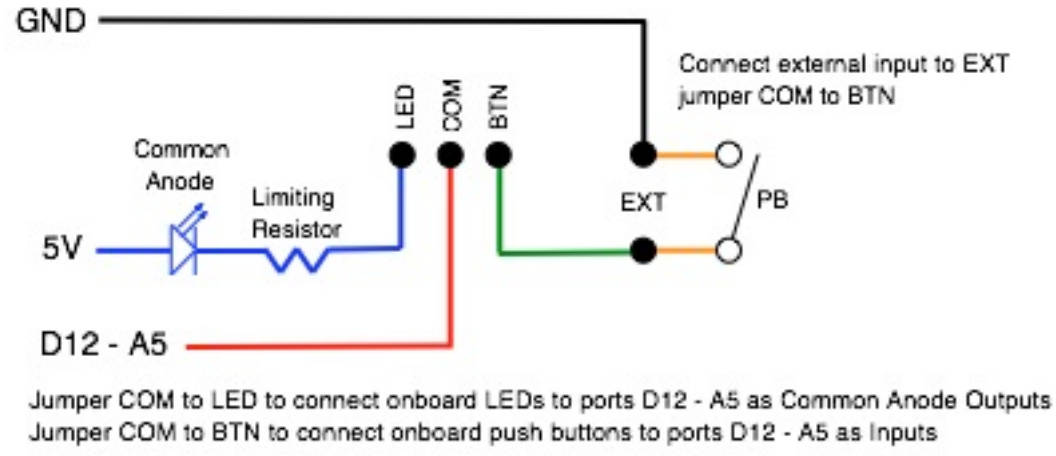

Figure 2 LED - Option Button Jumpers

2. BILL OF MATERIALS

Description	Ref	Qty	Supplier	Part No.
cpNode TESTER PCB v1.5	PCB1	1	MRCS	TESTER
5mm LED	LED1-LED16	16	Jameco	697531
Resistor - LED limiting 1k	R1-R16	16	Jameco	690865
SMT Resistor - LED limiting	R1-R16	0	HSC	
Tactile Switch SPST	BTN	8	Jameco	149948
8 pos Screw Terminal 2.54 mm	IO1,IO2	2	Electronics Salon	GS019-2.54
2 pos Screw Terminal 2.54 mm	GND, 5v	2	Electronics Salon	GS019-2.54
Pin header 0.100" 1x2 pos	EXTIN,5V,GND	10	Jameco	160882
Pin header 0.100" 1x3 pos	BTN/LED Select	8	Jameco	160882
Pin header 0.100" 1x16 pos	IO1,IO2	0	Jameco	160882
Shorting Plug 0.100"	BTN/LED Jumper	8	Jameco	112432

3. ASSEMBLY

[ ] All of the components are through-hole technology with wire leads. A useful tool is a lead bender for forming the leads at 90 degrees for easy insertion into the pad holes. Start with inserting the lower height components.

[ ] Install limiting resistors R1-R16. A value of 1000 ohms will give sufficient protection to the LEDs and provide useable brightness.

[ ] Install the two pin, .100" male headers for 5vdc power and GND (Btn) return.

[ ] Install the two pin, .100" male headers for the external sensor inputs.

[ ] Install the three pin, .100" male headers for the BTN/LED jumpers.

[ ] Install the 16 LEDs.

[ ] Install the tactile pushbuttons. Orient the push button to the silkscreen for proper switch closure connection.

[ ] Install the two pin, .100" male headers for the external sensor inputs.

[ ] Input/Output Port Connections. Depending upon the connection scheme, .100" screw terminals, header pins, or other interconnect hardware can be inserted into the pad area.