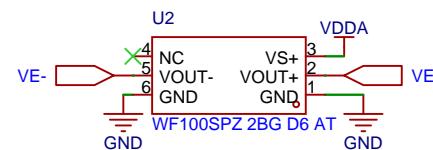


Laser Monitor

Monitors air pressure, extractor status to keep laser safe
Flashes warning lights, alarm if air or extractor not functioning

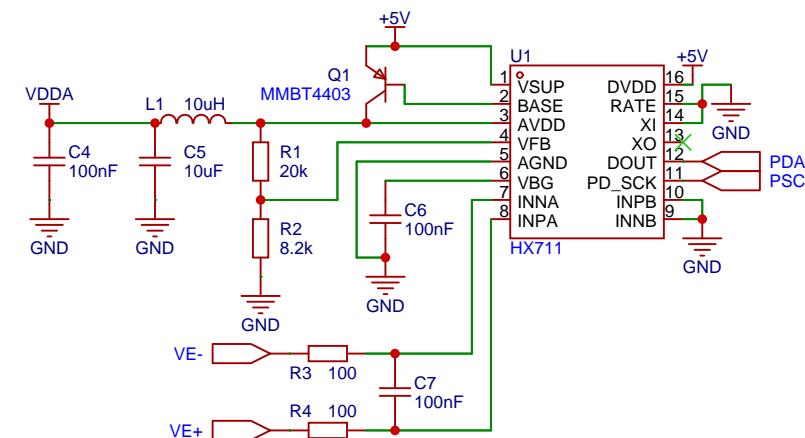
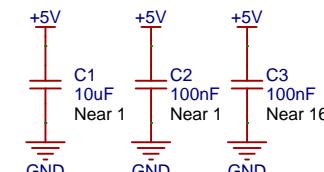
Intercepts the DB9 fume control line
Read when cut starts by extractor on signal
Reads extractor state by fault, low pressure signals
Air pressure transducer for air assist line
Green-yellow-red andon setup
GREEN: Everything OK
YELLOW: Idle, or flashing if spooling up
RED: Flashing, issue present

V1.0.1 Changes:
Flipped incorrect DB9 pinout to fume extractor



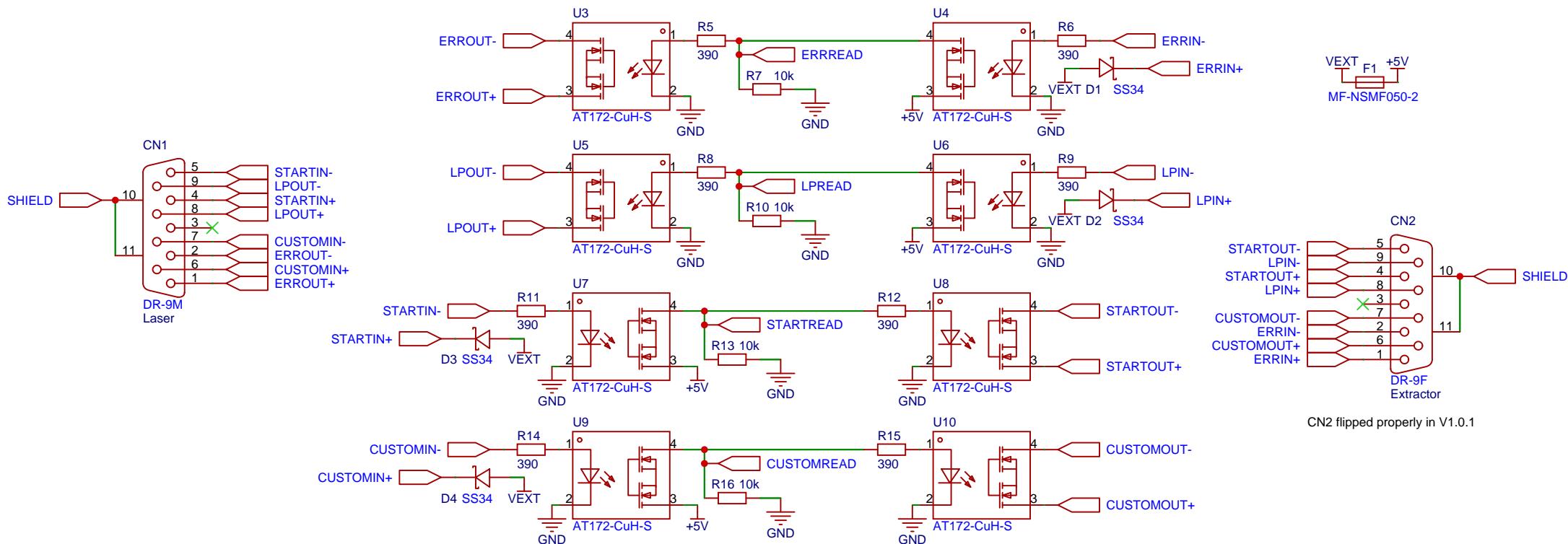
2BG = 200KPA (29PSI)
Full scale output is 80mV
HX711 max input is 40mV
Equivalent to reading 0-15PSI
0 output drift is +/- 15mV

We aren't trying to measure the actual pressure, just if there is pressure present



Schematic Page	Pressure Transducer	Page Number
Source Link	https://github.com/rit-construct-makerspace/laser-monitor	Total Pages
Version	1.0.1	Laser Monitor
RIT SHED		Main Board Schematic
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Signals are passed through independent of MCU



<https://support.epiloglaser.com/laser-machine/fusion-edge/system-requirements-setup/filter-control-connection-guide/>

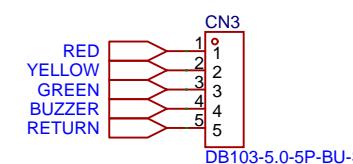
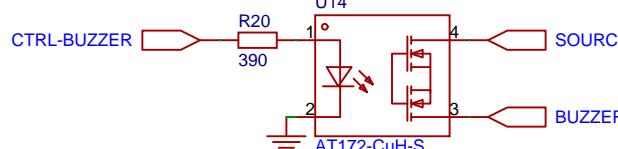
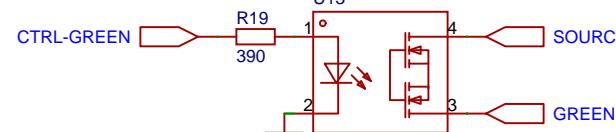
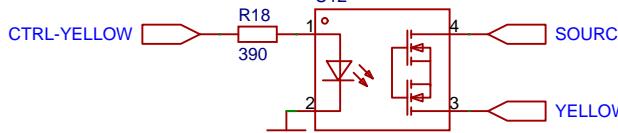
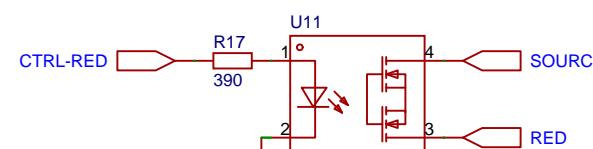
Pin	Signal Name	Type	Typical Usage (Varies by Configuration)
1	Input 1 (IN1+)	Input	Critical Error or "System Failure" input from filter (e.g. BOFA)
2	Input 1 Return (IN1-)	Input GND	Return for Input 1
3	N/C	Reserved	Do Not Connect
4	Output 1 (OUT1+)	Output	Start filter signal (e.g. Filtrabox / BOFA start command)
5	Output 1 Return (OUT1-)	Output GND	Return for Output 1
6	Output 2 (OUT2+)	Output	Optional/custom use output
7	Output 2 Return (OUT2-)	Output GND	Return for Output 2
8	Input 2 (IN2+)	Input	Low Pressure Detected or "Check Filter" signal (e.g. Filtrabox / BOFA)
9	Input 2 Return (IN2-)	Input GND	Return for Input 2

Schematic Page	Extractor Controls	Page Number
Source Link	https://github.com/rit-construct-makerspace/laser-monitor	Total Pages
Version	1.0.1	6
RIT SHED		Laser Monitor Main Board Schematic
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Switch to go between NPN and PNP control

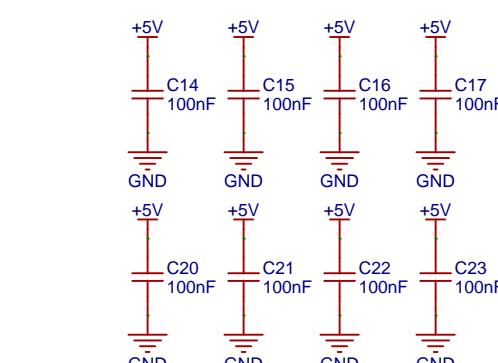
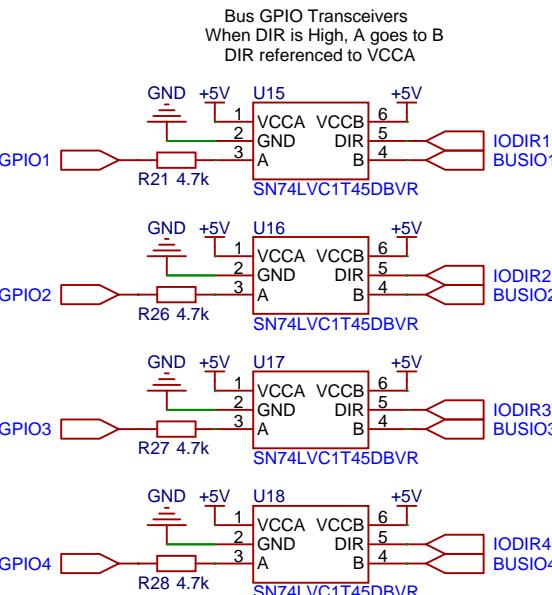
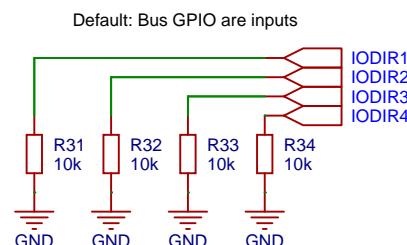
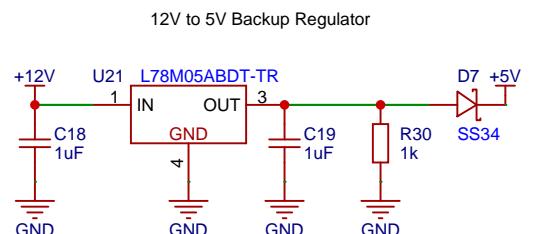
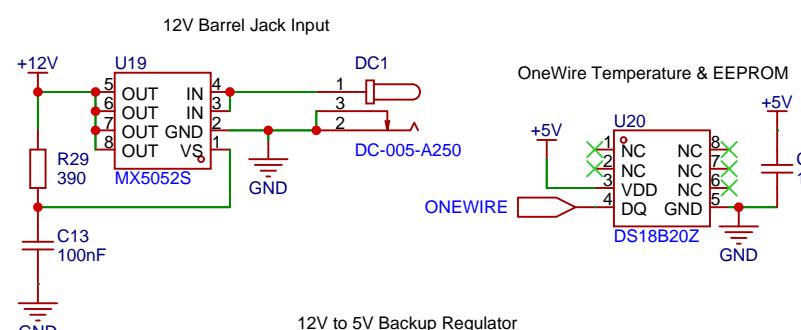
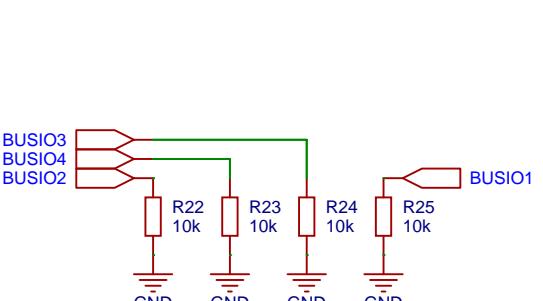


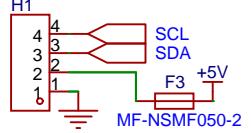
The diagram shows a dual-channel driver IC (SS-22F07-G100) with two channels. Each channel has a source terminal (red bar) and a return terminal (blue bar). The top channel has pins 3, 2, 8, 6, 5, and 4. Pin 3 is connected to GND (green ground symbol), pin 2 is connected to the source, pin 8 is the output, pin 6 is connected to VLED (blue LED symbol), and pin 5 is connected to the return. The bottom channel has pins 1, 7, and 4. Pin 1 is connected to VLED (blue LED symbol), pin 7 is the output, and pin 4 is connected to the return. Both outputs (pins 8 and 7) are labeled SW1. A green cross symbol is placed between the two outputs.



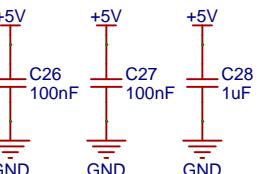
Schematic Page	Andon Light	Page Number	3
Source Link	https://github.com/rit-construct-makerspace/laser-monitor	Total Pages	6
Version	1.0.1		
RIT SHED		Laser Monitor Main Board Schematic	
3	4	5	6

ACS Interface is optional, allows critical faults to be reported to the server.
Replaces onboard LDO with high-efficiency stepdown as well

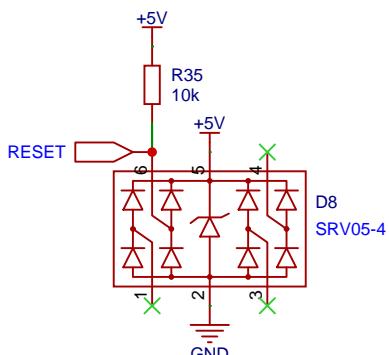
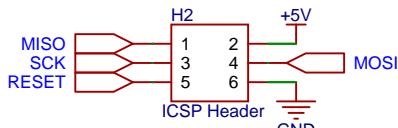




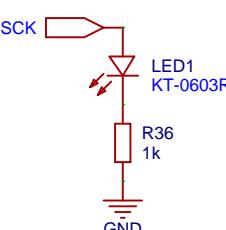
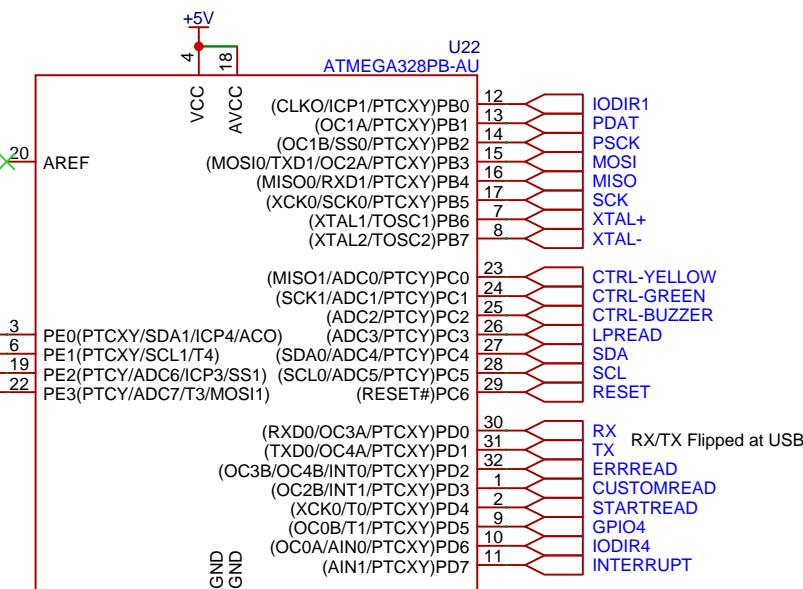
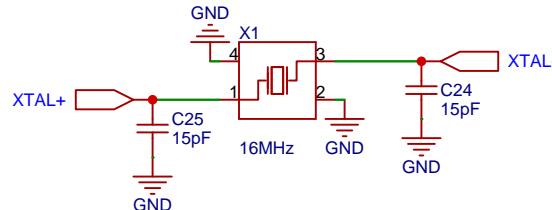
A
Connector for external I²C Display
Ex: HT16K33 4 character, 14 segment
Ex: 1602 LCD Screen with I²C Backpack



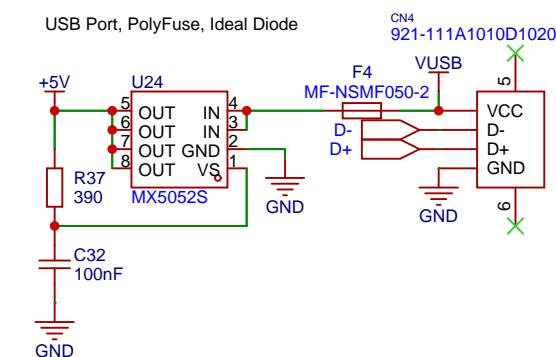
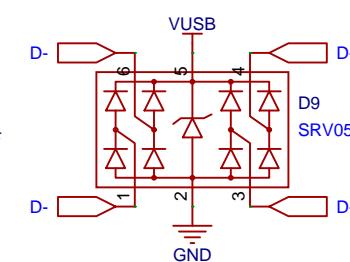
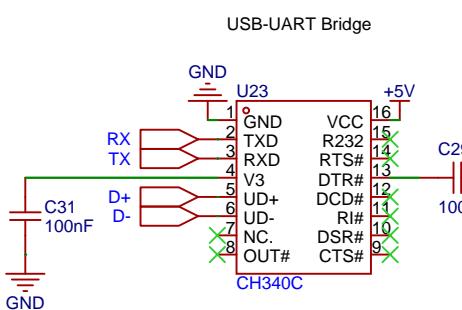
ICSP pins re-used as bus GPIO
To take advantage of UART1



Clamp reset between 0 and 5v
Re-use ESD diode to reduce unique part count



Schematic Page	Microcontroller	Page Number
Source Link	https://github.com/rit-construct-makerspace/laser-monitor	Total Pages
Version	1.0.1	6
RIT SHED	Laser Monitor Main Board Schematic	
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Schematic Page	USB-UART	Page Number	6
Source Link	https://github.com/rit-construct-makerspace/laser-monitor	Total Pages	6
Version	1.0.1	Laser Monitor Main Board Schematic	
RIT SHED		Licensed Under CERN-OHL-S 2.0	