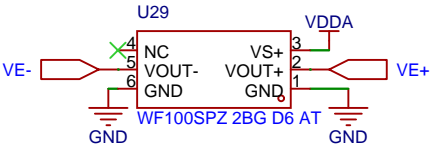
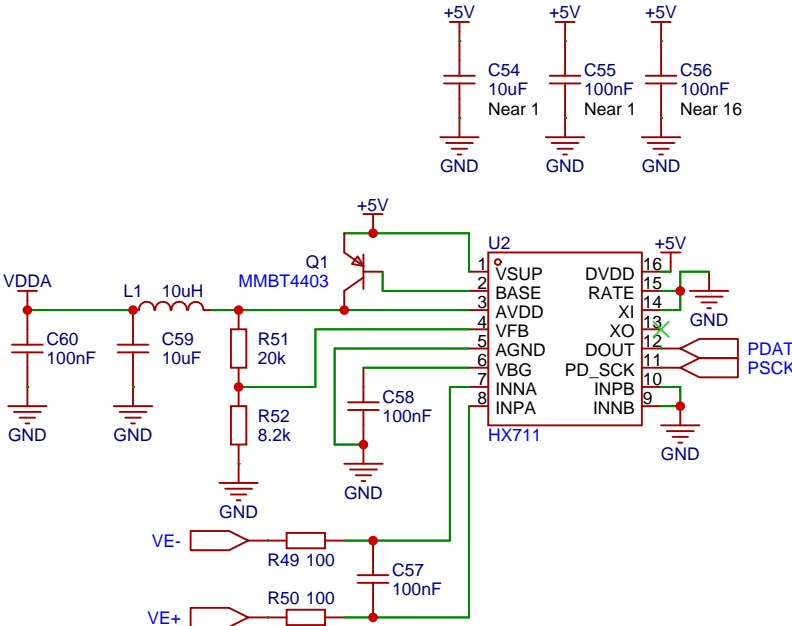


Laser Monitor
Monitors air pressure, extractor status to keep laser safe
Flashes warning lights, alarm if air or extractor not functioning
Intercepts the DB9 fume control line
Read when cut starts by extractor on signal
Reads extractor state by fault, low pressure signals
Air pressure transducer for air assist line
Green-yellow-red andon setup
GREEN: Everything OK
YELLOW: Idle, or flashing if spooling up
RED: Flashing, issue present



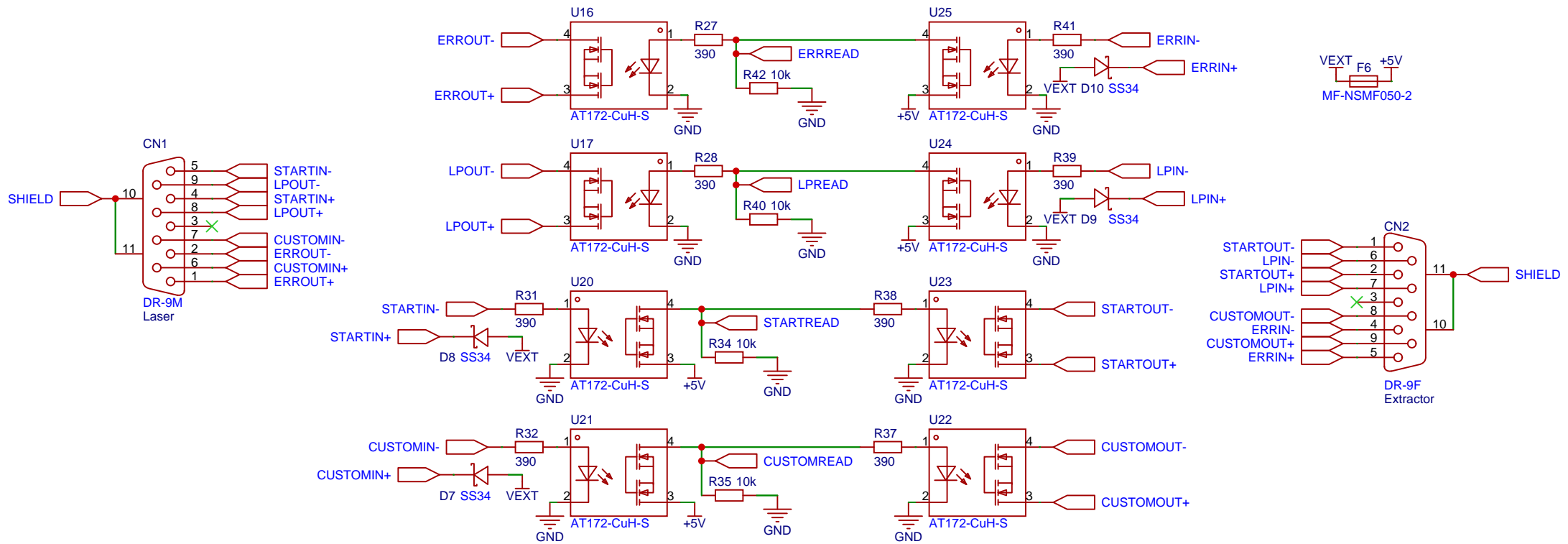
2BG = 200KPA (29PSI)
Full scale output is 80mV
HX711 max input is 40mV
Equivelant to reading 0-15PSI
0 output drift is +/- 15mV

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



Schematic Page	Pressure Transducer		Page Number	1
Source Link	https://github.com/rit-construct-makerspace/laser-monitor		Total Pages	6
Version	1.0.0	<div>Laser Monitor Main Board Schematic</div> <div>Licensed Under CERN-OHL-S 2.0</div>		
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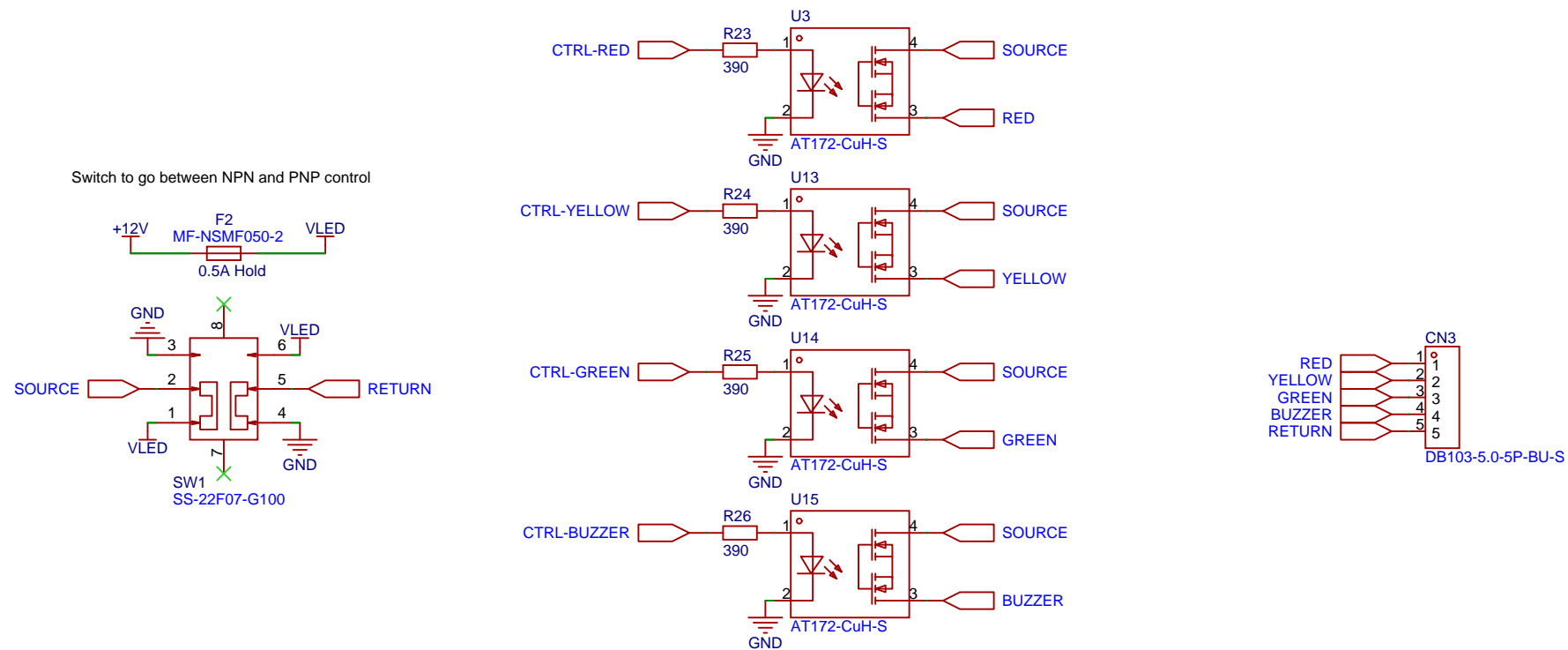
Signals are passed through independent of MCU



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

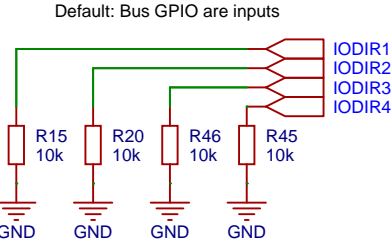
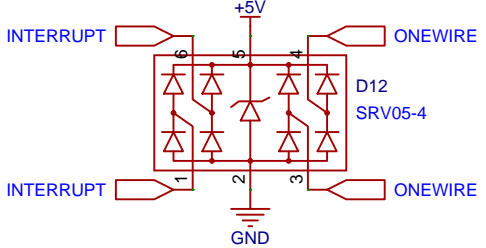
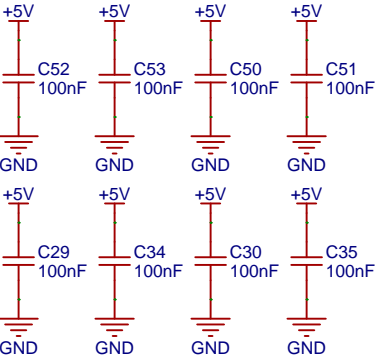
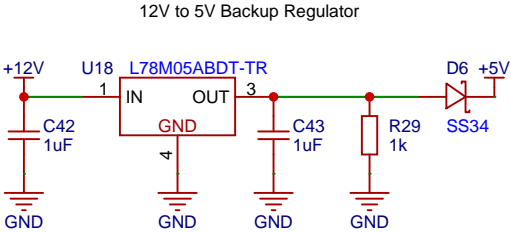
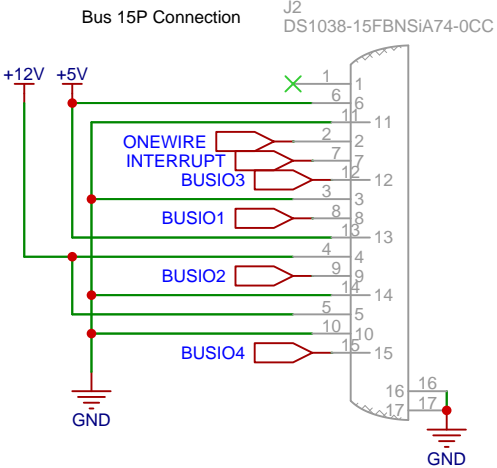
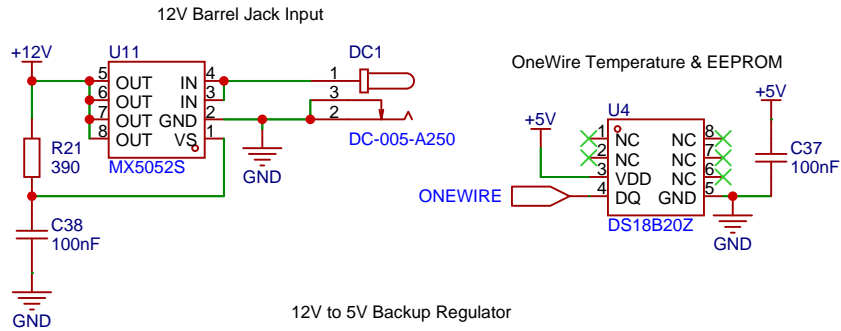
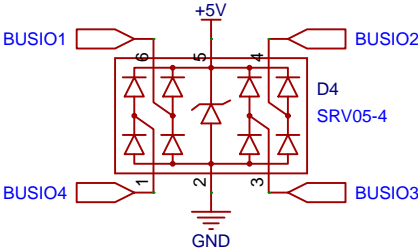
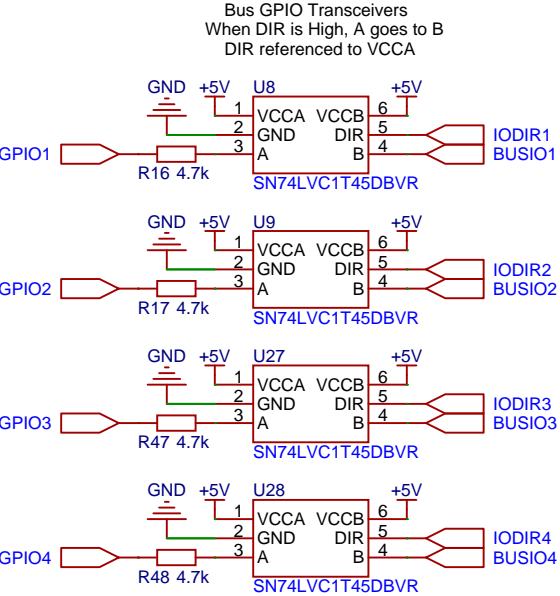
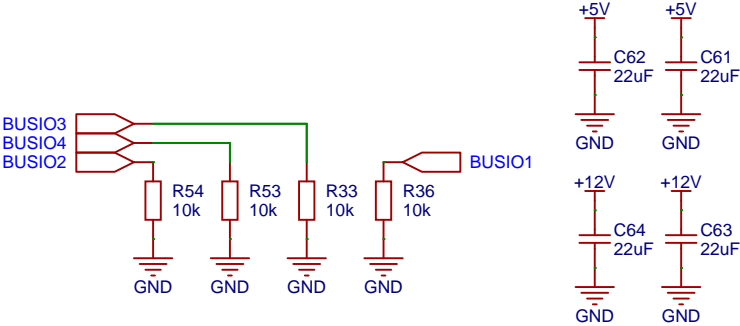
Pin	Signal Name	Type	Typical Usage (Varies by Configuration)
1	Input 1 (IN1+)	Input	Critical Error or "System Failure" input from filter (e.g. BOFA)
2	Input 1 Return (IN1-)	Input GND	Return for Input 1
3	N/C	Reserved	Do Not Connect
4	Output 1 (OUT1+)	Output	Start filter signal (e.g. Filtrabox / BOFA 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	2
Source Link	https://github.com/rit-construct-makerspace/laser-monitor		Total Pages	6
Version	1.0.0	<div>Laser Monitor Main Board Schematic</div> <div>Licensed Under CERN-OHL-S 2.0</div>		
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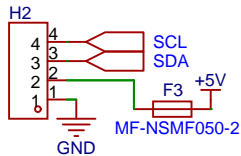


Schematic Page	Andon Light		Page Number	3
Source Link	https://github.com/rit-construct-makerspace/laser-monitor		Total Pages	6
Version	1.0.0	<div>Laser Monitor Main Board Schematic</div> <div>Licensed Under CERN-OHL-S 2.0</div>		
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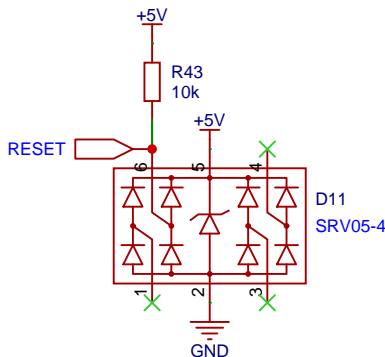
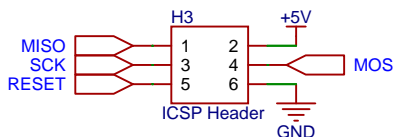
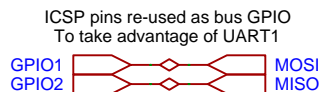
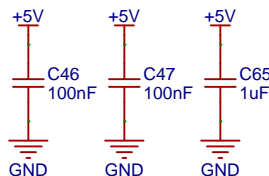
ACS Interface is optional, allows critical faults to be reported to the server.
Replaces onboard LDO with high-efficiency stepdown as well



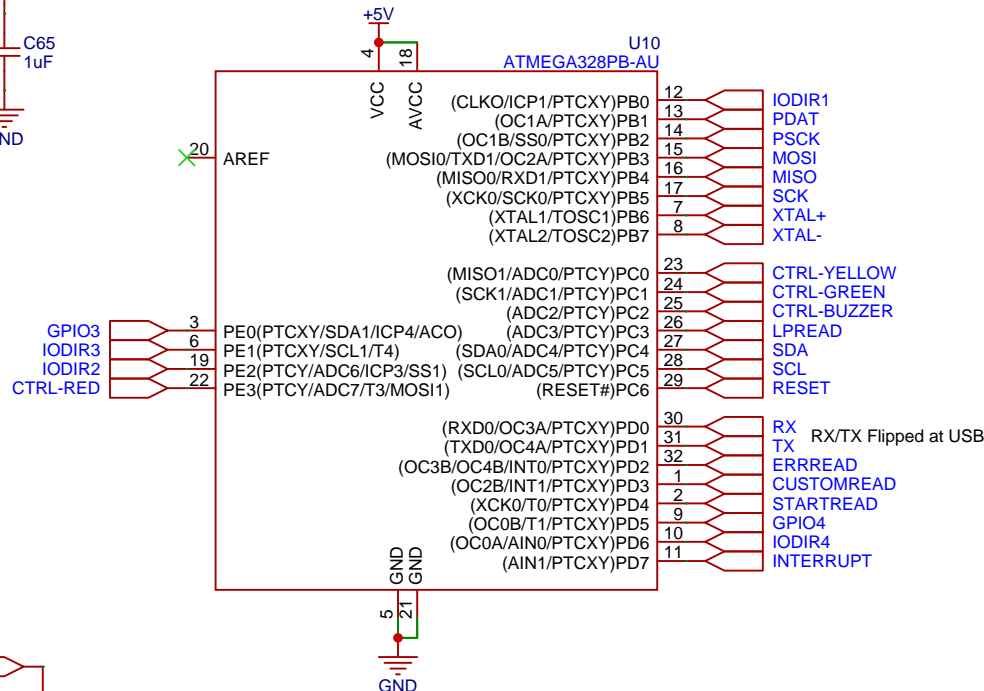
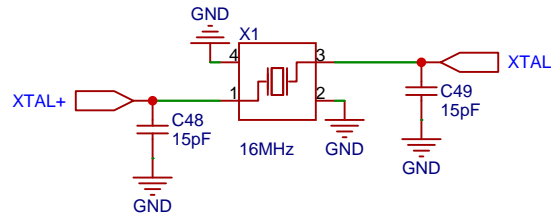
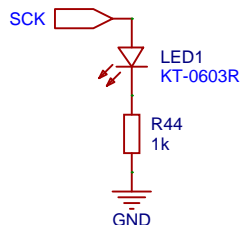
Schematic Page	ACS Interface		Page Number	4
Source Link	https://github.com/rit-construct-makerspace/laser-monitor		Total Pages	6
Version	1.0.0	<div>Laser Monitor Main Board Schematic</div> <div>Licensed Under CERN-OHL-S 2.0</div>		
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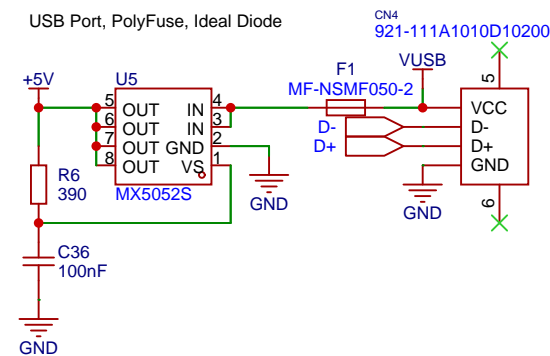
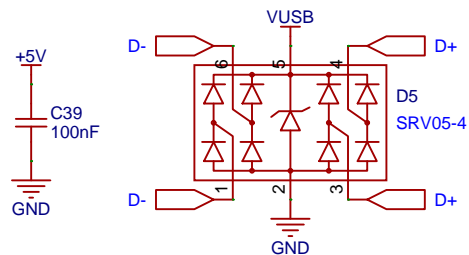
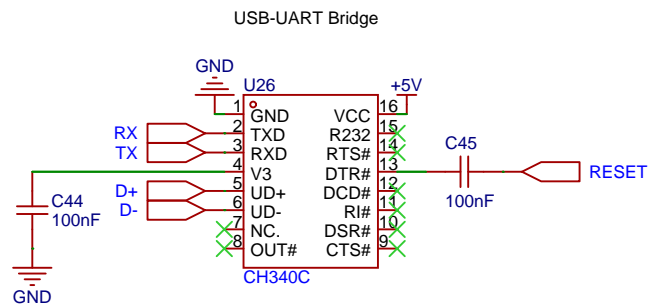
Connector for external i2C Display
 Ex: HT16K33 4 character, 14 segment
 Ex: 1602 LCD Screen with i2C Backpack



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



Schematic Page	Microcontroller		Page Number	5
Source Link	https://github.com/rit-construct-makerspace/laser-monitor		Total Pages	6
Version	1.0.0	<div>Laser Monitor</div> <div>Main Board Schematic</div> <div>Licensed Under CERN-OHL-S 2.0</div>		
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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	1.0.0	<div>Laser Monitor</div> <div>Main Board Schematic</div> <div>Licensed Under CERN-OHL-S 2.0</div>		
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