

Laser Monitor

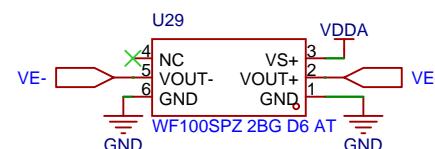
Monitors air pressure, extractor status to keep laser safe
Flashes warning lights, alarm if air or extractor not functioning

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

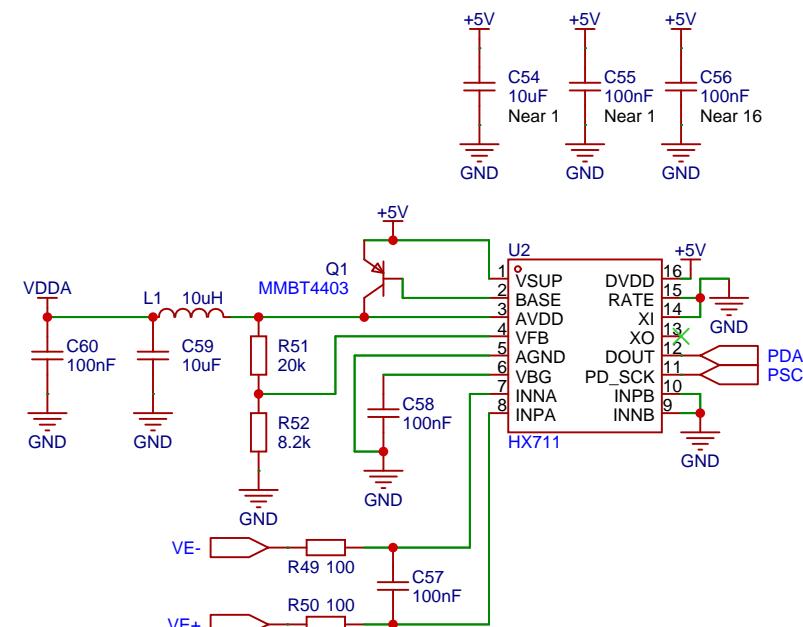
GREEN: Everything OK
YELLOW: Idle, or flashing if spooling up

RED: Flashing, issue present



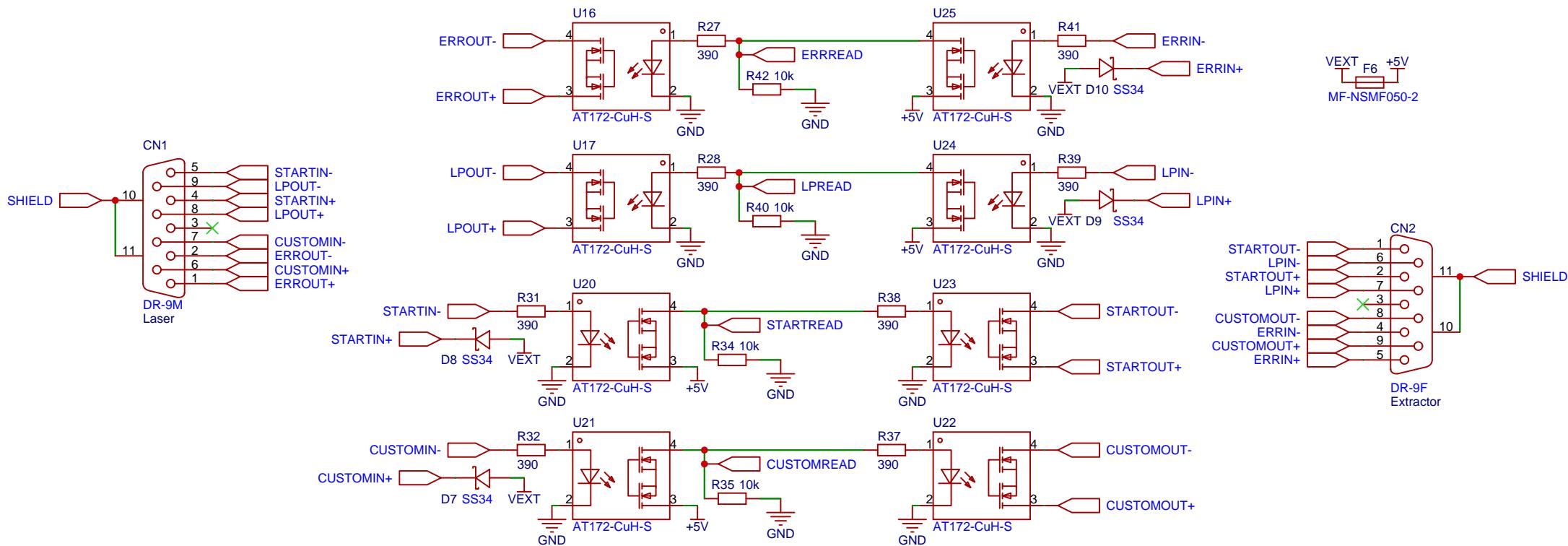
2BG = 200KPA (29PSI)
Full scale output is 80mV
HX711 max input is 40mV
Equivalent to reading 0-15PSI
0 output drift is +/- 15mV

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



Schematic Page	Pressure Transducer	Page Number
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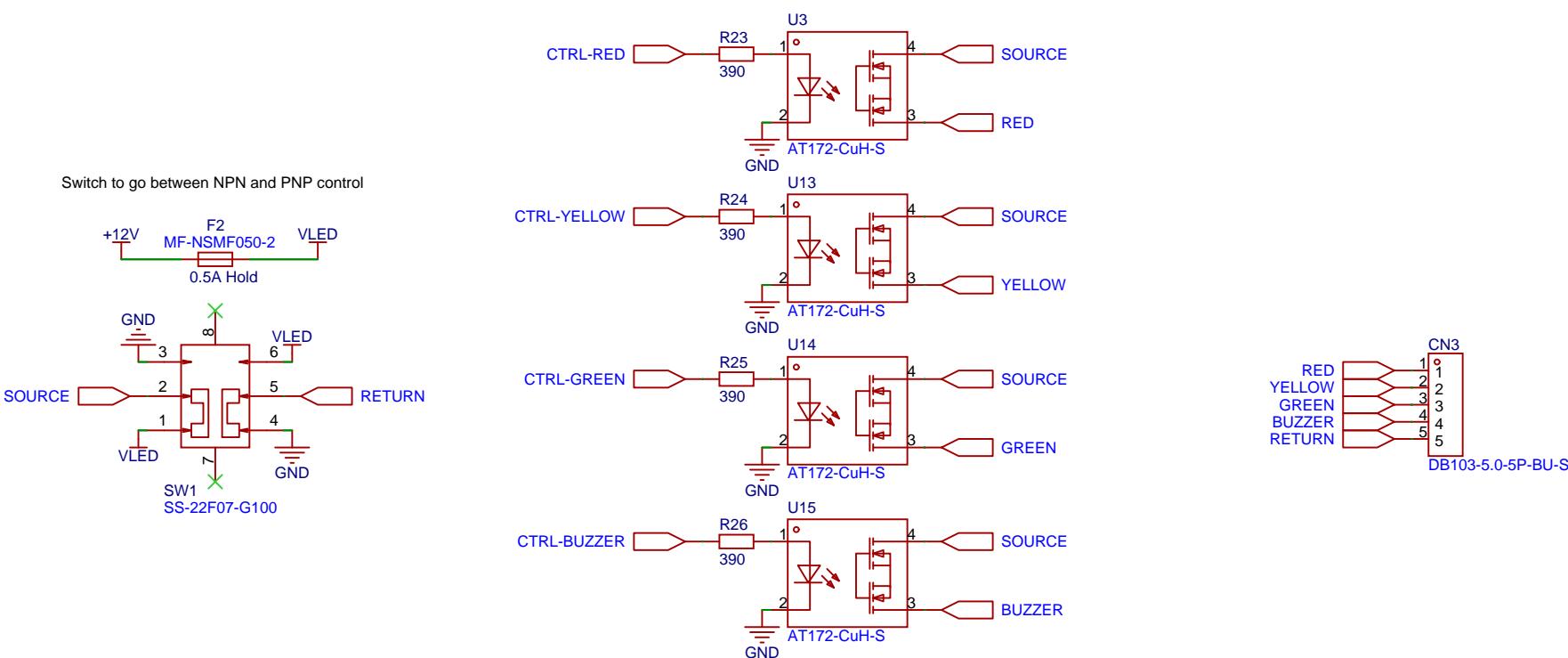
Signals are passed through independent of MCU



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

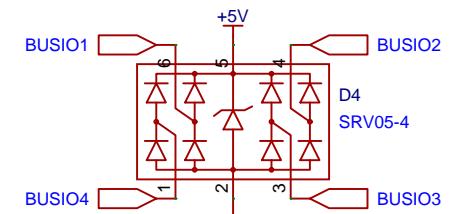
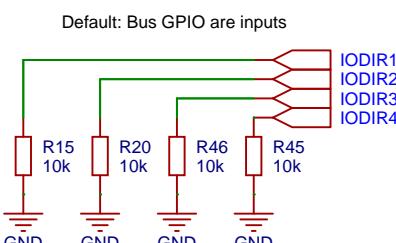
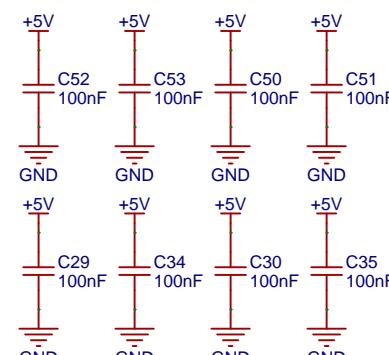
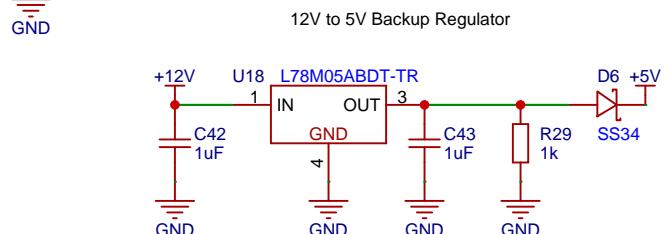
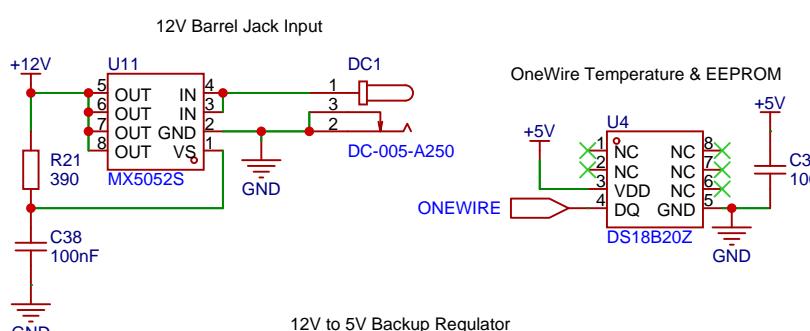
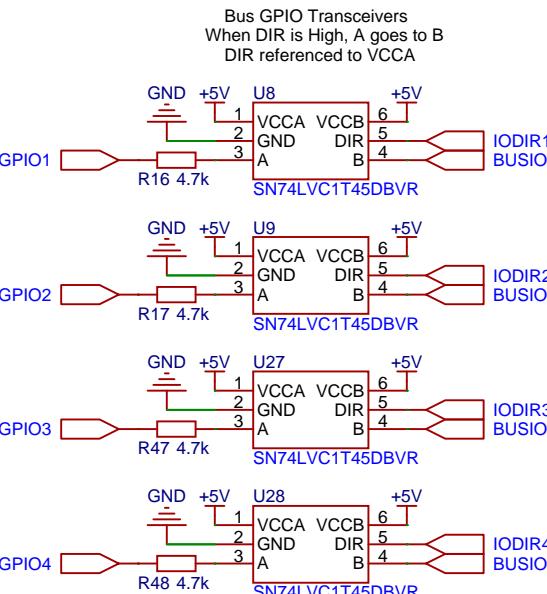
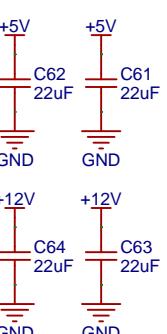
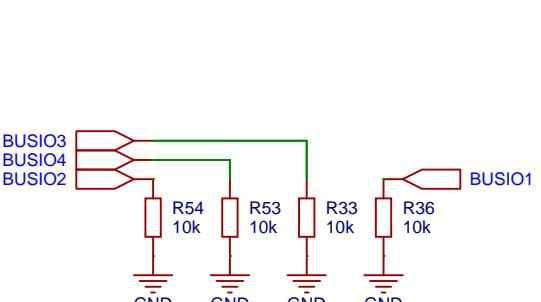
Pin	Signal Name	Type	Typical Usage (Varies by Configuration)
1	Input 1 (INI+)	Input	Critical Error or "System Failure" input from filter (e.g. BOFA)
2	Input 1 Return (INI-)	Input GND	Return for Input 1
3	N/C	Reserved	Do Not Connect
4	Output 1 (OUT1+)	Output	Start filter signal (e.g. Filtrabox / BOFA 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
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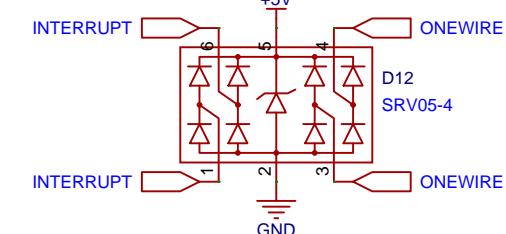
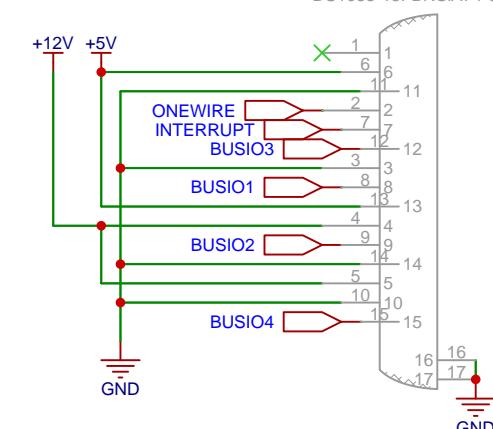


Schematic Page	Andon Light	Page Number	3
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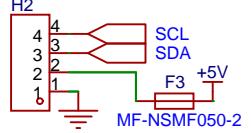
ACS Interface is optional, allows critical faults to be reported to the server.
Replaces onboard LDO with high-efficiency stepdown as well



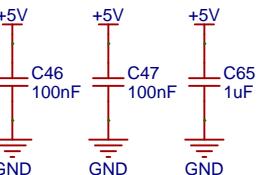
Bus 15P Connection J2 DS1038-15FBNSIA74-0CC



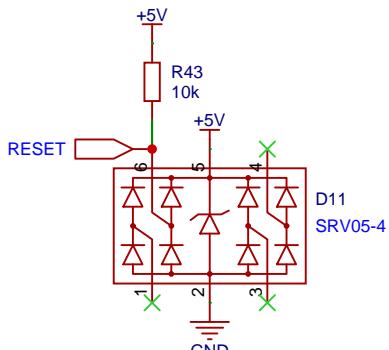
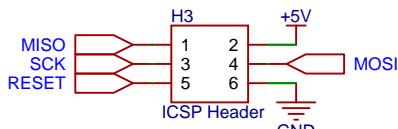
Schematic Page	ACS Interface	Page Number
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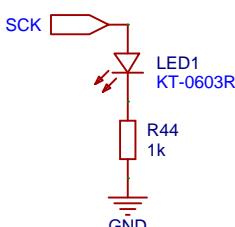
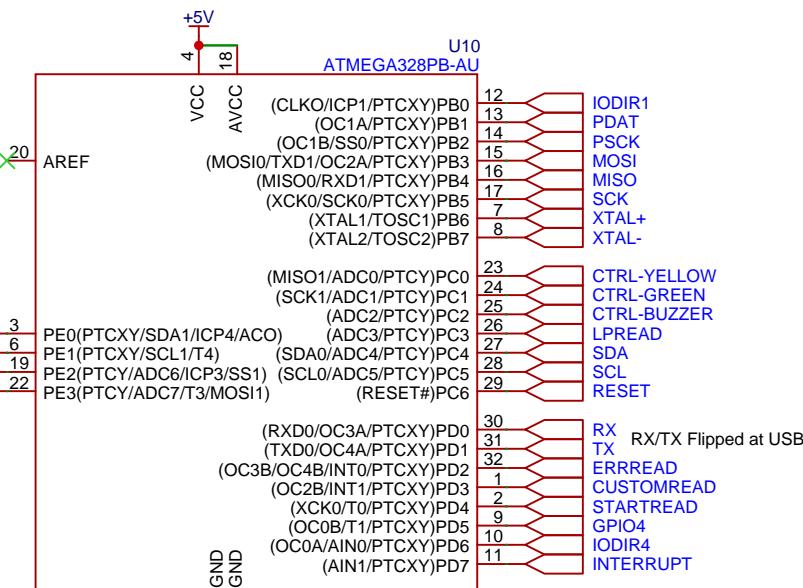
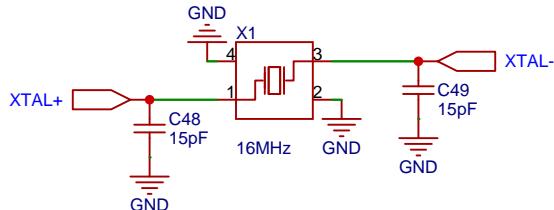
A
Connector for external I²C Display
Ex: HT16K33 4 character, 14 segment
Ex: 1602 LCD Screen with I²C Backpack



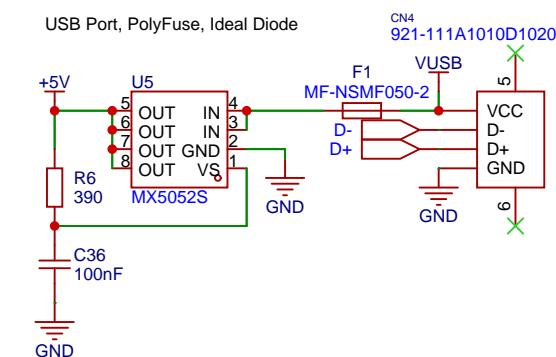
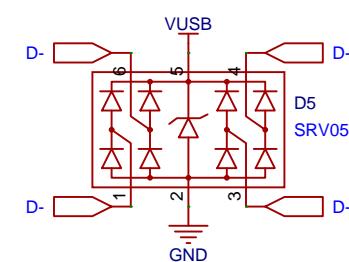
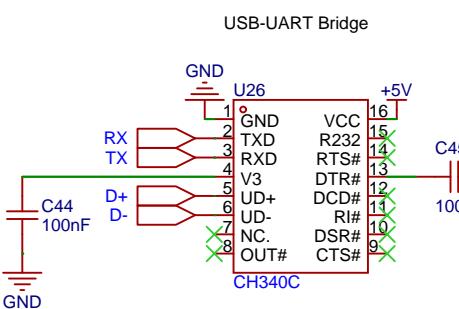
ICSP pins re-used as bus GPIO
To take advantage of UART1



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



Schematic Page	Microcontroller	Page Number
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