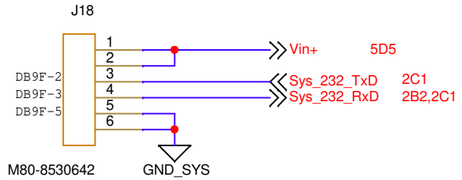
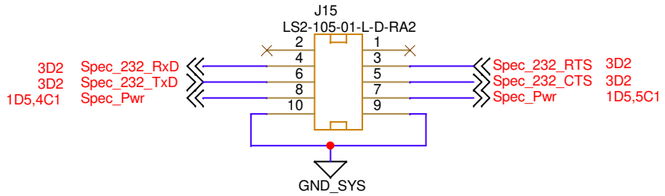
Power and Comms

Vin = 8-22VDC
Mate: M80-8880605



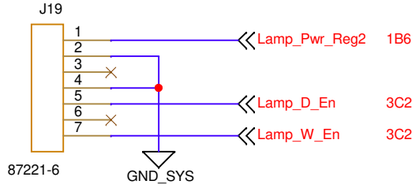
Spectrometer Pwr/Comms

Spec current draw (5V): 100-120 mA



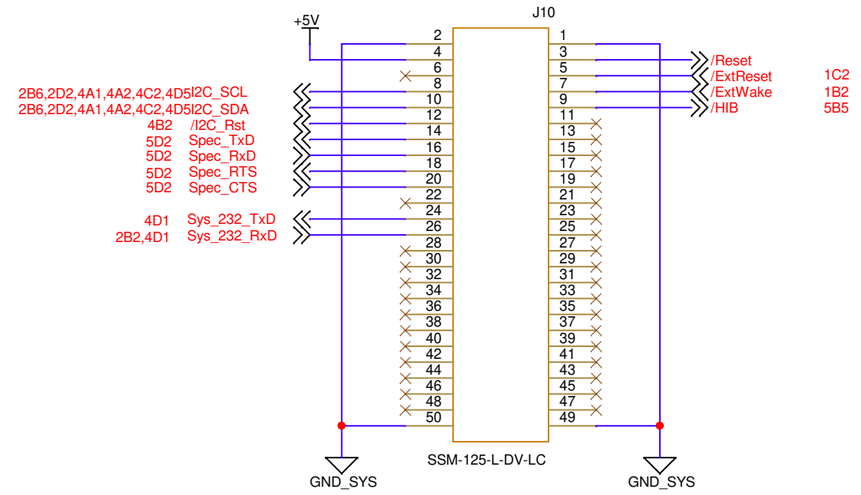
Fiberlight Interface

Solder to Fiberlight board Fiberlight current draw (12V): <450 mA



Tiva Module Interface

Module takes 5V for easier testing - has its own 3.3V reg
HIB controls nothing on module; use to disable 5V reg on baseboard
Sys_232 level shifting on module
Wake on receive is implemented on baseboard, not module
/ExtReset is input to module to reset it (MR from supervisor)
/Reset is output from module indicating it has been reset

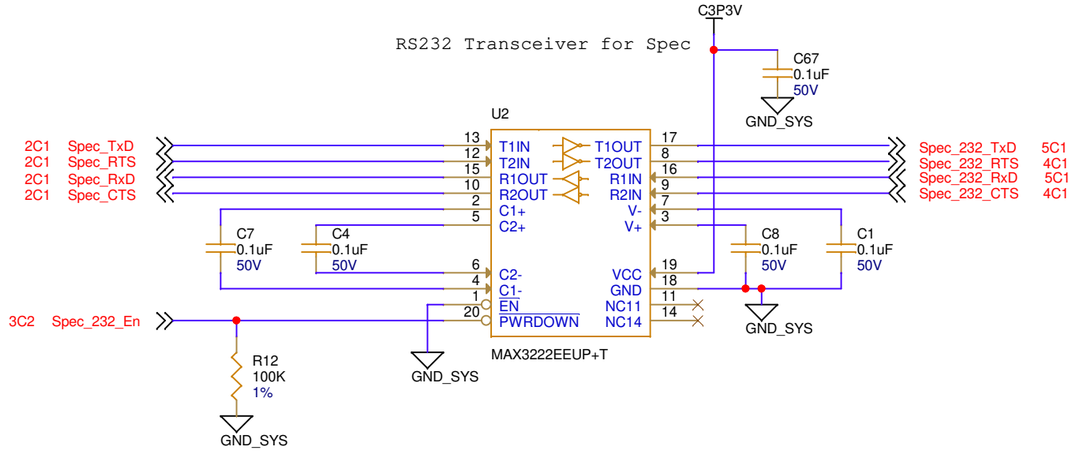


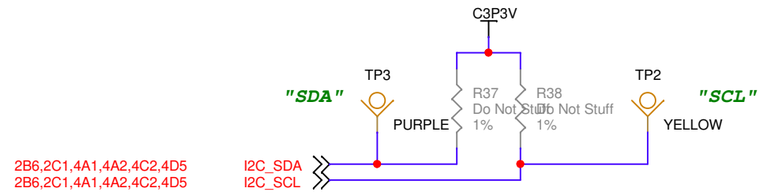
Var1

Monterey Bay Aquarium Research Institute
7700 Sandholdt Road, Moss Landing, CA 95039

Schematic Name: MiniISUS Baseboard			
Page Title: 01_Connectors			Engineer: Irene Hu
Project Name: Chemical Sensors	Group Name: ChemicalSensors		Designer: Jose Rosal
System: Mini ISUS	Subsystem: <Subsystem>		Last Updated By: irenehu
Drawing Number: 100222237	Release: A	Version: 19	Status: Active / Size: B
Page Modify Date: Monday, February 03, 2025	Check In Date: 2/3/2025 12:54:22 PM		Sheet 1 of 5

RS232 Transceiver for Spec





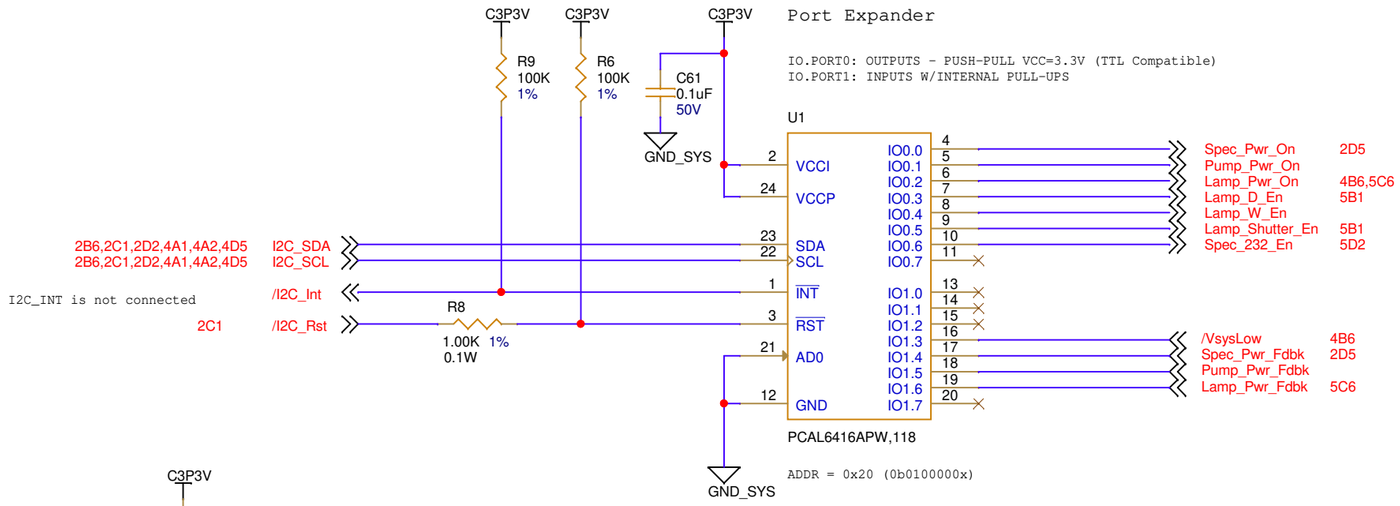
I2C 7-bit addresses

Baseboard:
PCAL6414A (GND): 0x20
BME280 (Vcc): 0x76
INA260 (SCL/SCL): 0x4F
INA260 (GND/SCL): 0x4C

Tiva Module:
MB85RC1MT (GND/GND): 0x50

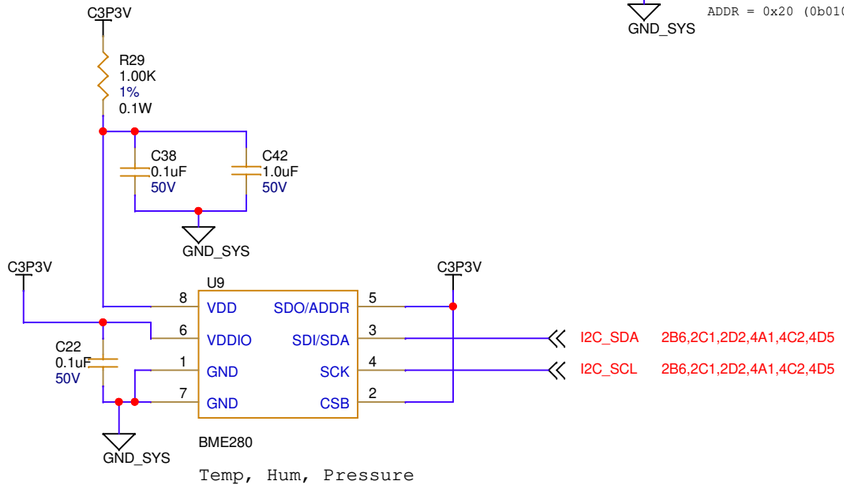
Port Expander

IO.PORT0: OUTPUTS - PUSH-PULL VCC=3.3V (TTL Compatible)
IO.PORT1: INPUTS W/INTERNAL PULL-UPS



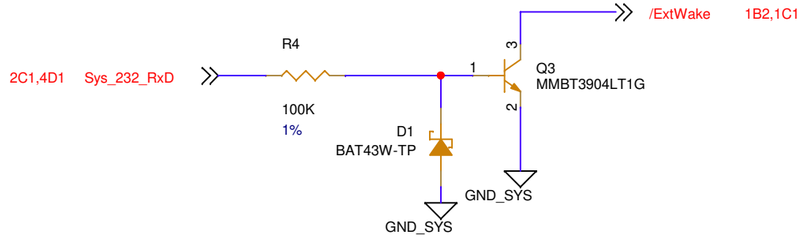
I2C_INT is not connected

ADDR = 0x20 (0b0100000x)



Temp, Hum, Pressure

ADDR = 0x77 (0b1110111x)
Avoid liquids; cover sensor to clean



Var1

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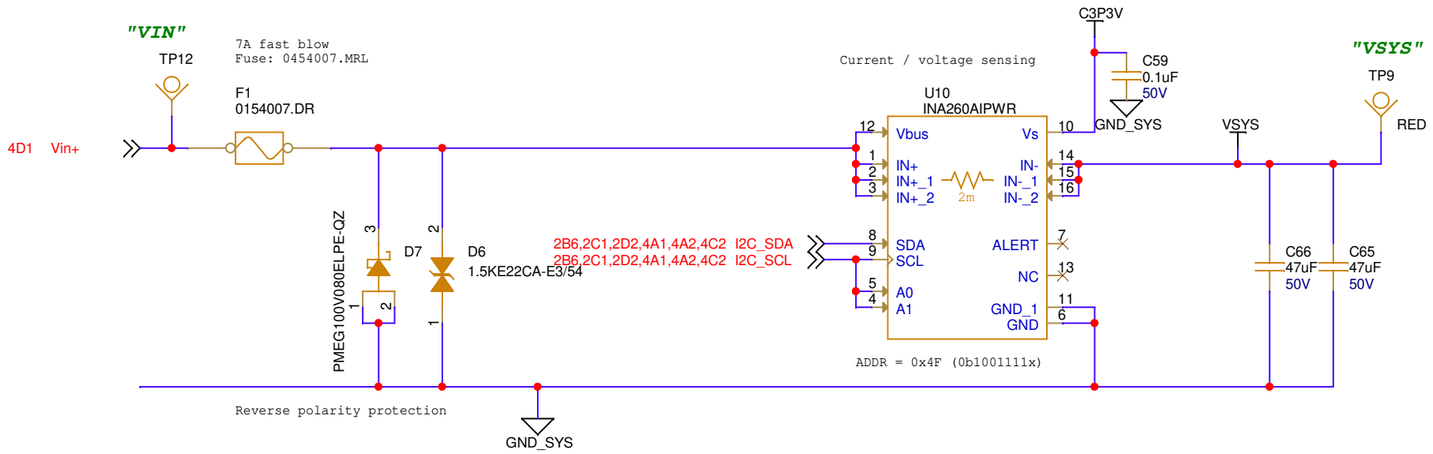
7700 Sandholdt Road, Moss Landing, CA 95039

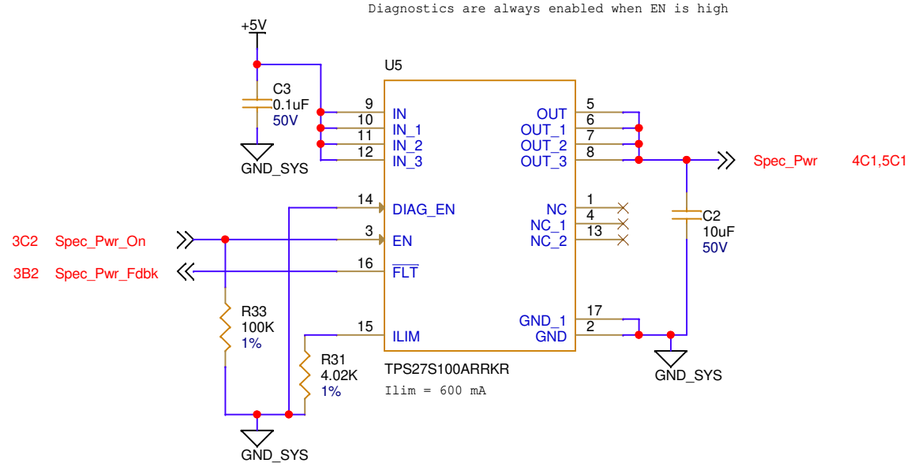
Schematic Name: MiniISUS Baseboard			
Page Title: 02_Signals			Engineer: Irene Hu
Project Name: Chemical Sensors	Group Name: ChemicalSensors		Designer: Jose Rosal
System: Mini ISUS	Subsystem: <Subsystem>		Last Updated By: irenehu
Drawing Number: 100222237	Release: A	Version: 19	Status: Active / Size: B
Page Modify Date: Monday, February 03, 2025	Check In Date: 2/3/2025 12:54:22 PM		Sheet 2 of 5

Input power circuitry

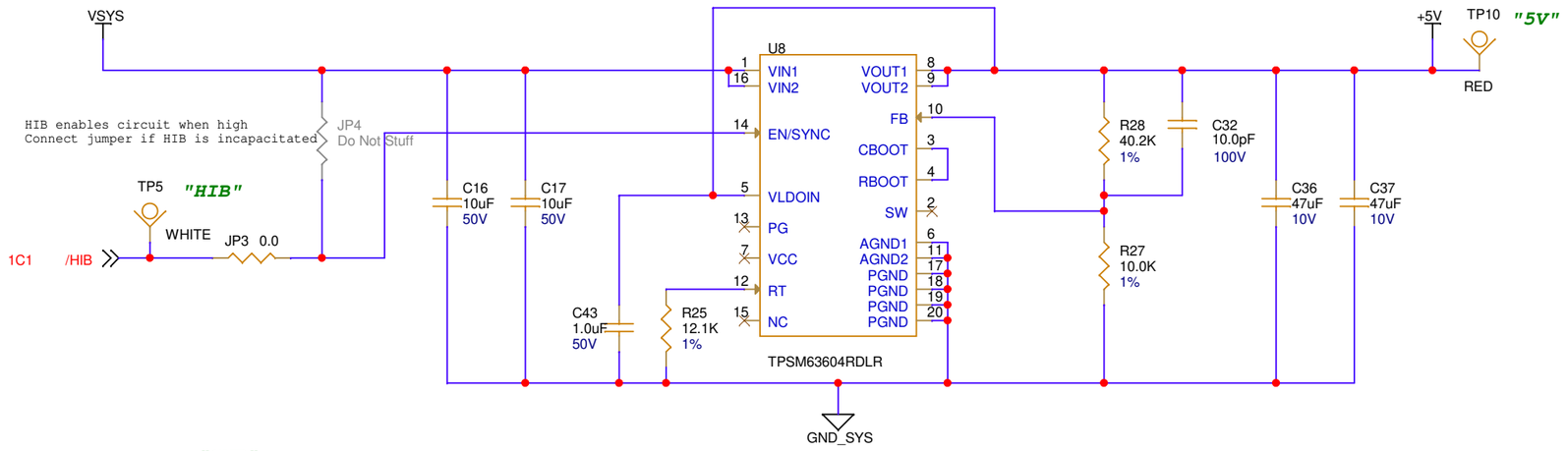


Spectrometer High-side switch

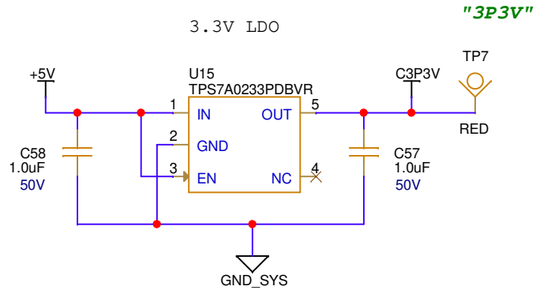
TPS27S100A current limit: 2466 / Rlim
Diagnostics are always enabled when EN is high

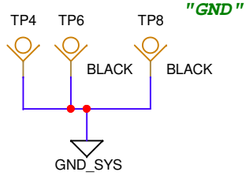


5V regulator



3.3V LDO





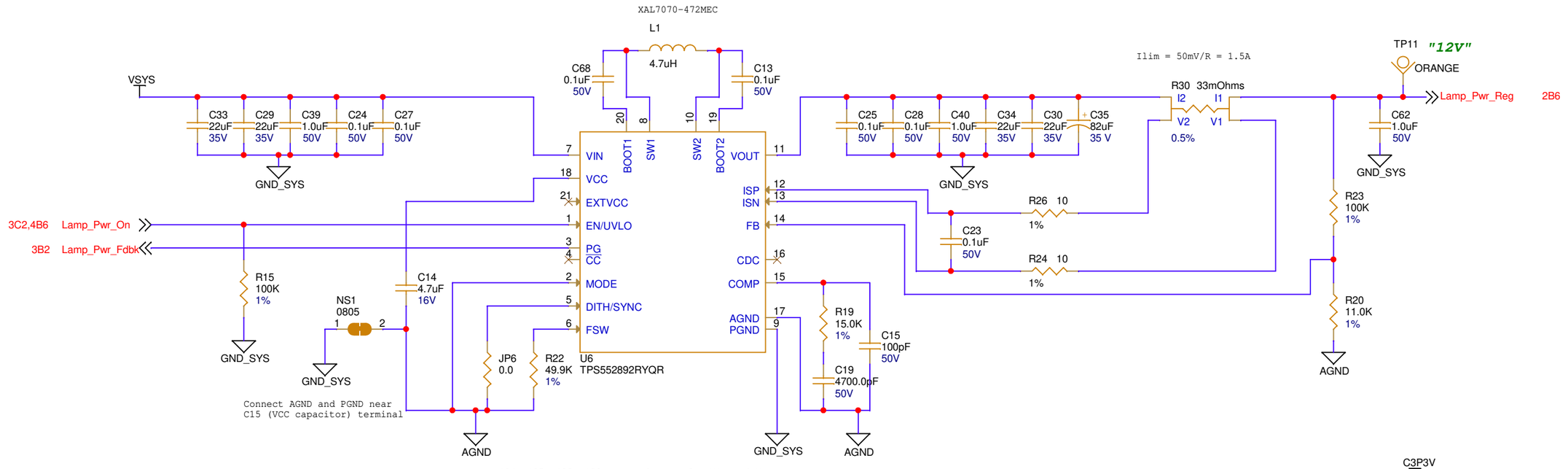
2 input caps for 2 input pins
2 output caps for 2 output pins
Follow layout guidelines on spec sheet

Var1

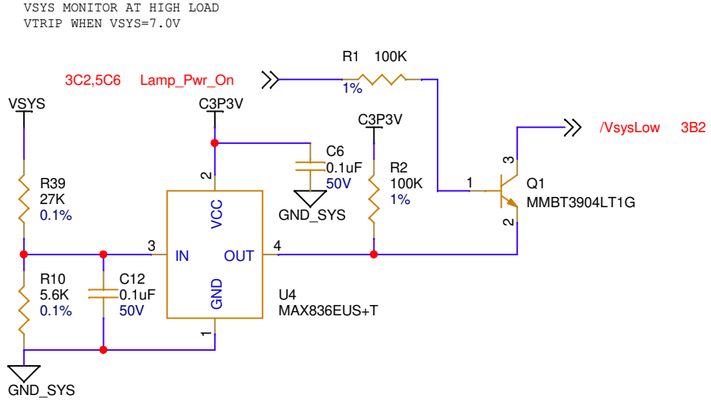
Monterey Bay Aquarium Research Institute
7700 Sandholdt Road, Moss Landing, CA 95039

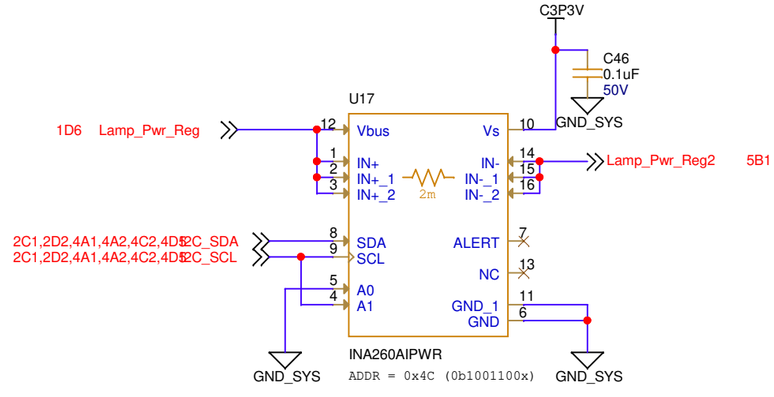
Schematic Name: MiniISUS Baseboard		
Page Title: 03_MainPower_SpecPwr		Engineer: Irene Hu
Project Name: Chemical Sensors	Group Name: ChemicalSensors	Designer: Jose Rosal
System: Mini ISUS	Subsystem: <Subsystem>	Last Updated By: irenehu
Drawing Number: 100222237	Release: A Version: 19	Status: Active / Size: B
Page Modify Date: Monday, February 03, 2025	Check In Date: 2/3/2025 12:54:22 PM	Sheet 3 of 5

12V for lamp



Lamp monitors





To set up INA260 to replace MAX836 function via Alert,
may need to control Vs to only power INA260 when lamp enabled

Var1

M B A R I
Monterey Bay Aquarium Research Institute
7700 Sandholdt Road, Moss Landing, CA 95039

Schematic Name: MiniISUS Baseboard			
Page Title: 04_LampPowerMon			Engineer: Irene Hu
Project Name: Chemical Sensors	Group Name: ChemicalSensors		Designer: Jose Rosal
System: Mini ISUS	Subsystem: <Subsystem>		Last Updated By: irenehu
Drawing Number: 100222237	Release: A	Version: 19	Status: Active / Size: B
Page Modify Date: Monday, February 03, 2025	Check In Date: 2/3/2025 12:54:22 PM		Sheet 4 of 5

NOTE: THIS BOARD USES VARIANTS TO CONFIGURE JUMPERS
Do not populate everything; follow variants

Configuration Notes
JP3, 4: Control 5V regulator with HIB (JP3) or leave always on (JP4) (05 Power1)
JP6: Potential replacement with capacitor for convertor dithering, otherwise leave 0ohms (06 Power2)

Var1

Monterey Bay Aquarium
Research Institute
7700 Sandholdt Road, Moss Landing, CA 95039

Schematic Name: MiniISUS Baseboard
Page Title: 05_Notes
Engineer: Irene Hu
Project Name: Chemical Sensors
Group Name: ChemicalSensors
Designer: Jose Rosal
System: Mini ISUS
Subsystem: <Subsystem>
Last Updated By: irenehu
Drawing Number: 100222237 Release: A Version: 19
Status: Active
Size: B
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Sheet 5 of 5