

RoboDome MyT Upgrade and Maintenance-Repair Log

20220214 to

ToDo

- DB15 for dome needs rewire to DB9
 - Pin 1 RD – Rs232
 - Pin 2 TD – Rs232
 - Pin3 S Gnd – Rs232
 - Pin 4 Phidget current Black==Ground
 - Pin 5 Phidget power Red== + 5volts
 - Pin 6 Phidget signal White == signal
 - Pin 7 No Connection
 - Pin 8 Control Room Remote control relay
 - Pin 9 Control Room Remote control relay
- Change model for DB9 backside clearance of the connector, is currently for smaller front side.
- 12V power module spacing too close need to change 48volt is different and OK
- More separation between the Phidget boards the USB connectors interfere. Trimming the connectors works.
- For the 10' dome will want to add a monitor relay for the in dome monitor so it can be shut off remotely
- Added an 8-32 for grounding the Simlex power supply
- Manual override button, temp contact, for ON with relay latch that is detached by auto mode remotely... like the computer on button.

Its really simple

- A bunch of relays for switching instruments
- Battery Voltage monitoring for battery health
- Current monitoring for battery load and charging
- Current monitoring for instrument load monitoring
- Remote on off of computer power and dome power
- Delay for simulated computer power button push
- A camera to keep an eye on things

Functionality

- Computer 1
 - Power
 - USB3
 - Network
 - Camera 1
 - Power
 - USB3
 - Focus 1
 - Power
 - USB2
 - Flat 1
 - Power
 - USB2
 - Mount
 - 48 volt
 - USB
 - Dome
 - DomeCamera
- Computer 2
 - Power
 - USB3
 - Network
 - Camera 2
 - Power
 - USB3
 - Focus 2
 - Power
 - USB2
 - Flat 2
 - Power
 - USB2

Measurements of Current

- 6' Dome setup
 - Paramount MX Mount at 12V side
 - 48V side 0.6 amps start, 0.15 amps tracking
 - QHY 600 Camera at 12V side
 - 2.6 amps start <1second 1 amp no cooler 3.77 cooler with low voltage 100% 2.2 volts with high voltage
 - Computer 1.5 amps but a LatteePanda Alpha.
 - ZWO camera ASI 6200mm 35.5 watts max
 - 0.3 amps at 12.5 volts no cooler
 - 2.9 amps at 12.5 volts cooler 100%
 - Power Supply no load 0.007A at 12.5volts = 0.09 Watts
- Kingdel Computer i7-4650U
 - Not powered 0.083amps at 12.5 volts = 1.04 Watts
 - 2.7 amps start-up
 - 1 amp running
- Paramount MyT
 - 0.28 amps no load at 12.5 volts
 - 0.72 amps mount power off at 12.5Volts = 0.9 Watts
 - 2.4 amp surge on start up
 - 0.96 amps on not tracking = 11.86 Watts
 - Tracking 1 amp = 12.5 Watts
 - Slew 3 amps = 36 watts

Computer supply 3 amps

Camera Supply 3 amps

Mount supply 48 volts at 2 amps

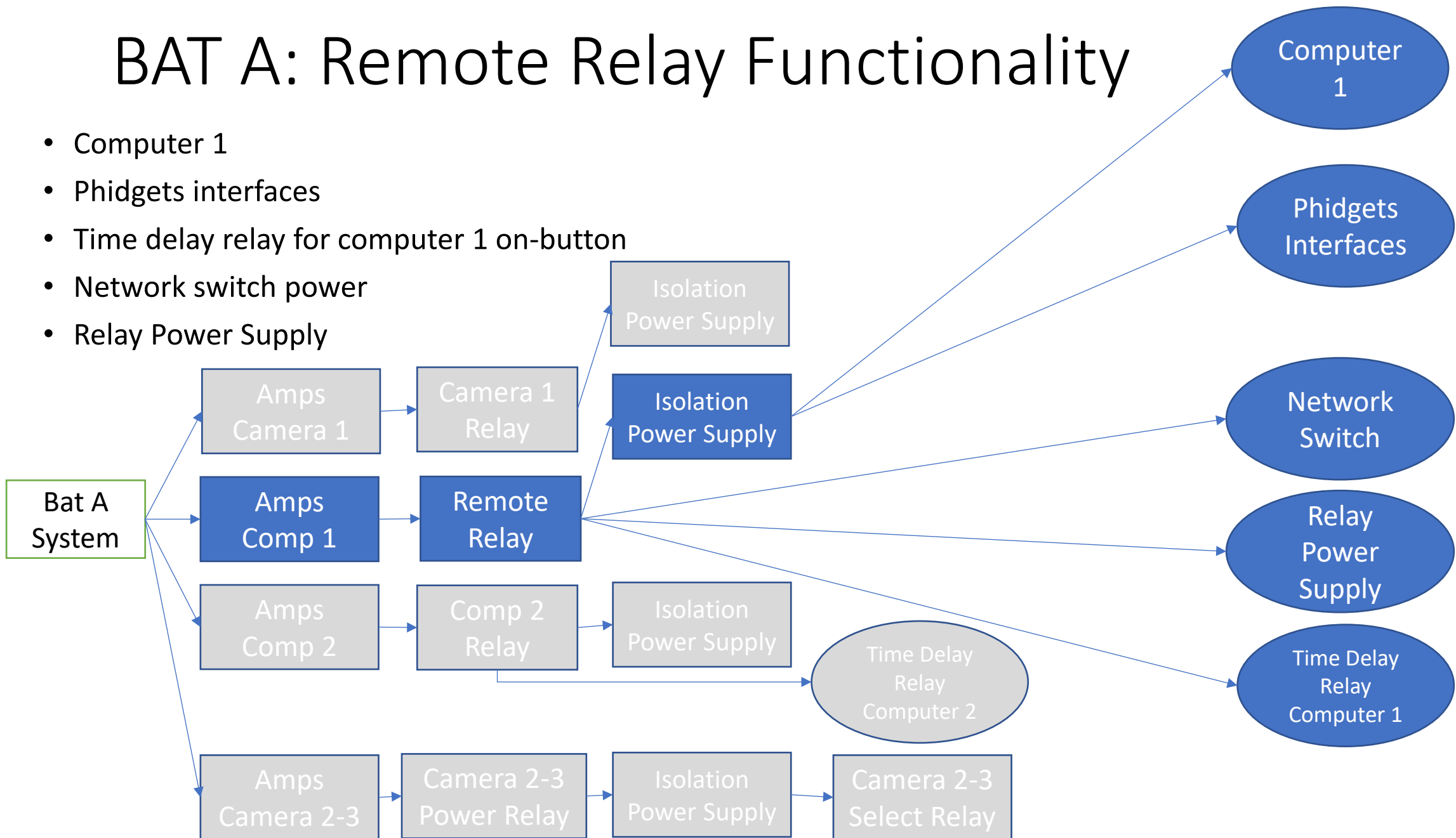
Relays 20mA per relay and drivers

In the dome rack

- Power supply- charger
- Voltage current sensors
- 8 relays for control
 - Computer 1 power
 - Camera 1 power
 - Focuser 1 power
 - Flat 1 power
 - Mount power
 - Camera 2 power
- Voltage stabilizers
 - Computers, cameras, mount
- Front panel interface

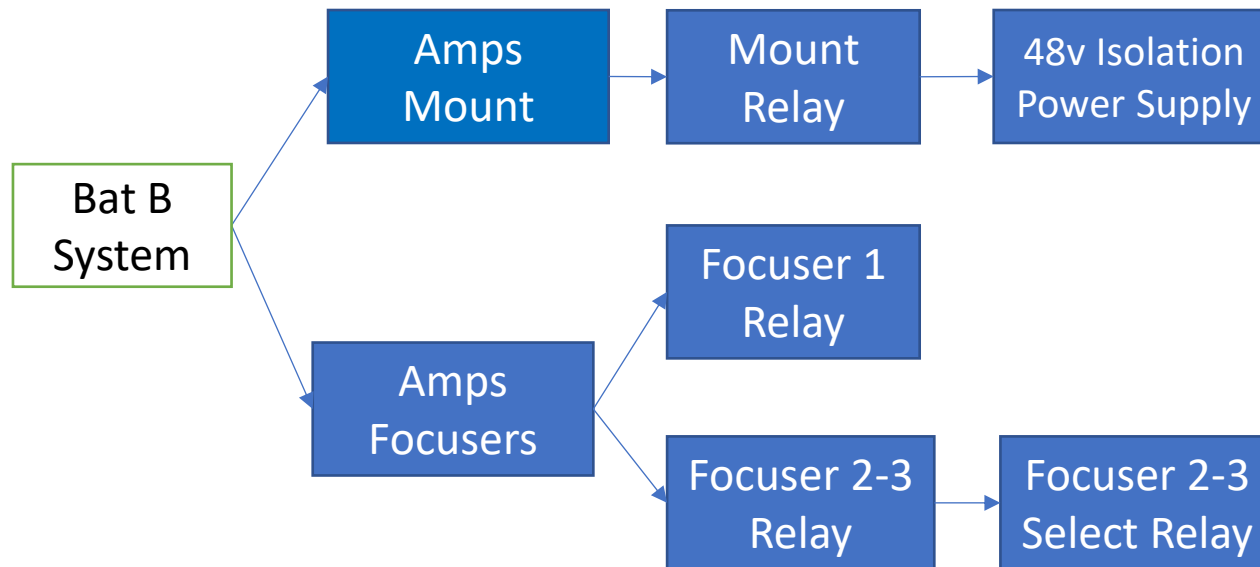
BAT A: Remote Relay Functionality

- Computer 1
- Phidgets interfaces
- Time delay relay for computer 1 on-button
- Network switch power
- Relay Power Supply



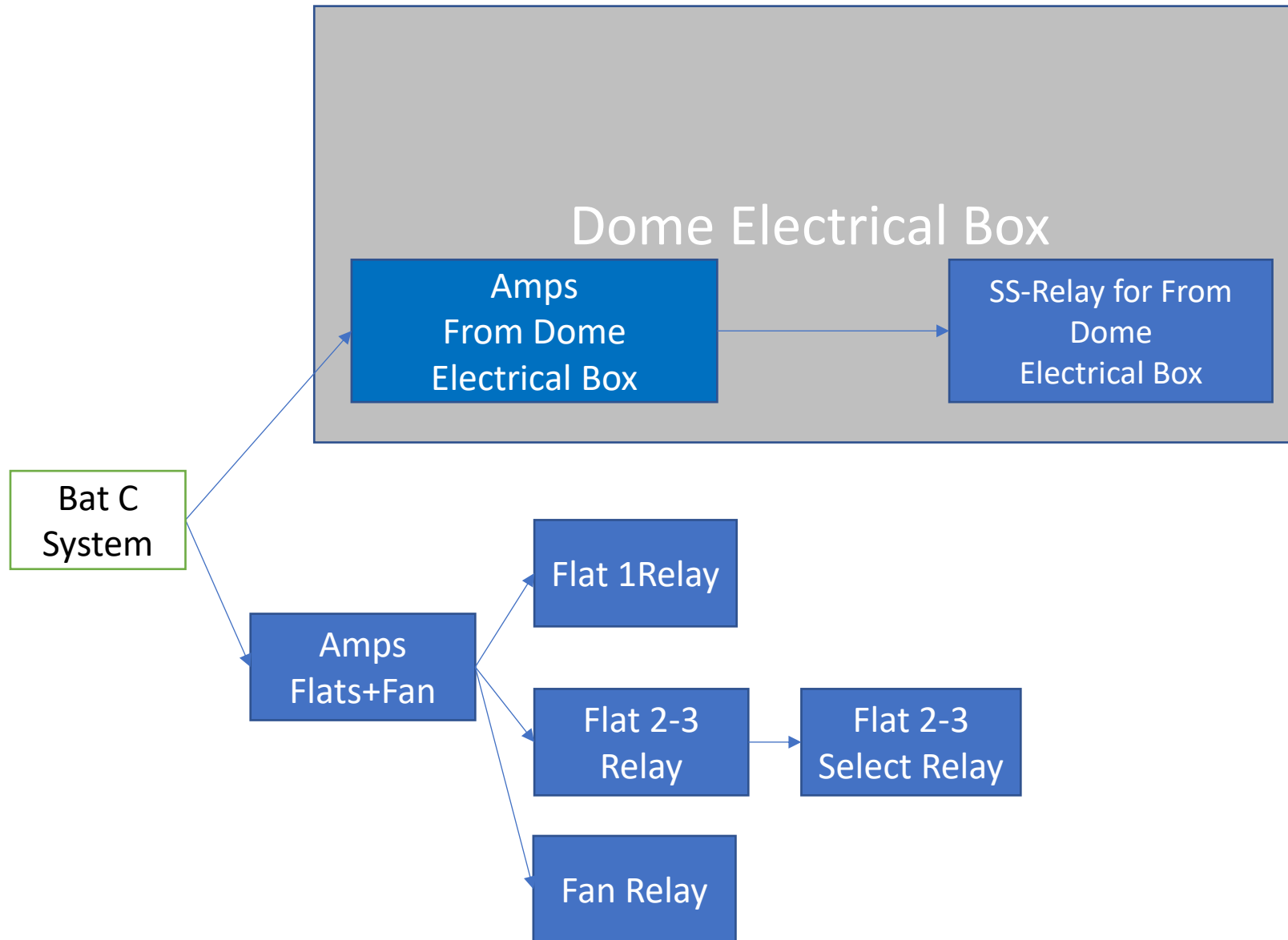
BAT B: Functionality

- Mount
- Focuser 1
- Focuser 2-3 Power
- Focuser 2-3 Select

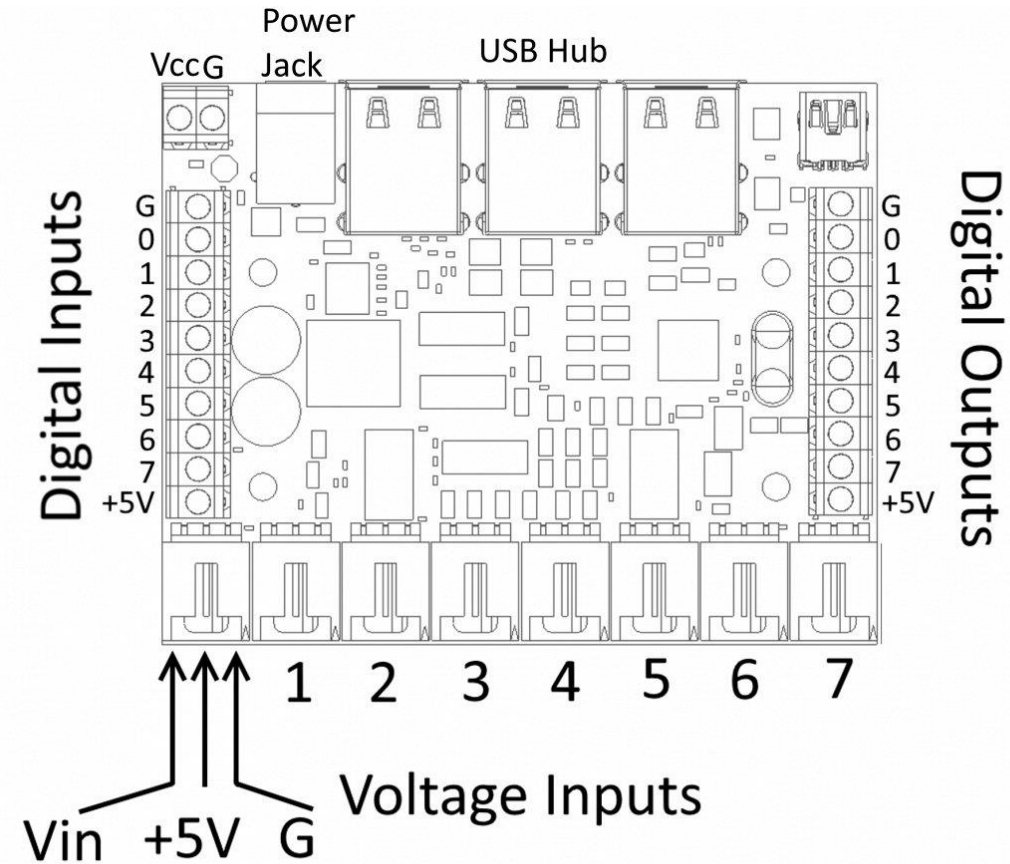


BAT C: Functionality

- Dome
- Flat 1
- Flat 2-3 Power
- Flat 2-3 Select

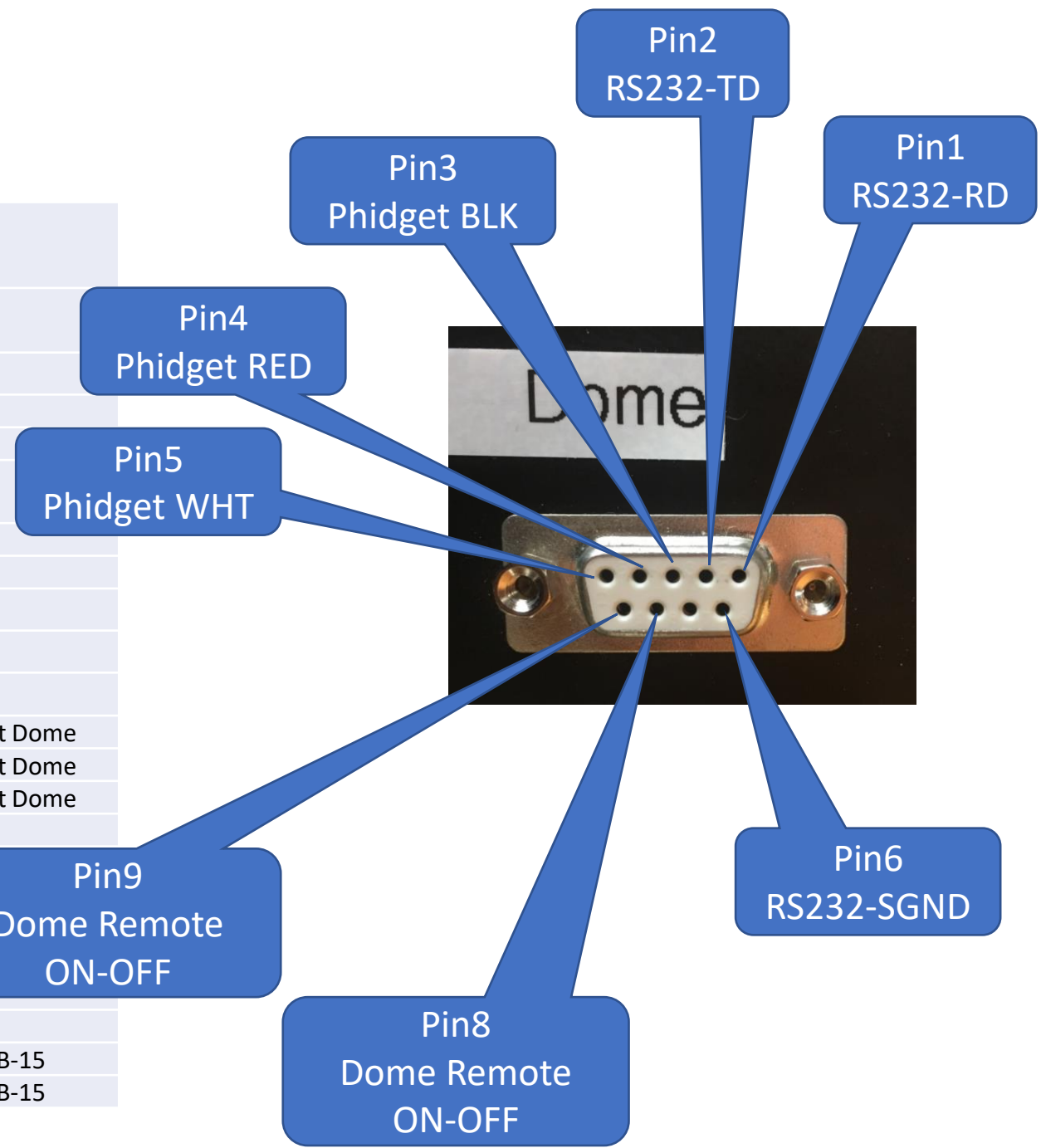


Phidgets 888



Dome DB9

RS232 ...was DB-15 cable...NOW DB9		
	Front Panel DB-9 Male	Function
cable to dome white pin 3 on RJ45	Was 1... NOW 1	1 Dome RS-232
cable to dome green pin 6 on RJ45	Was 9... NOW 2	2 Dome RS-232
cable to dome black pin 5 on RJ45	WAS 2... NOW 6	6 Dome RS-232
Orange/white	Was 6... NOW 3	3 Phidget Current Dome
Orange	Was 3... NOW 4	4 Phidget Current Dome
Green White	Was 11... NOW 5	5 Phidget Current Dome
Blue		
Blue/white		
green		
brown/white.....WHITE. Internal	Was 15... NOW 8	8 Dome on-off DB-15
brown.....BLUE. Internal	Was 8... NOW 9	9 Dome on-off DB-15



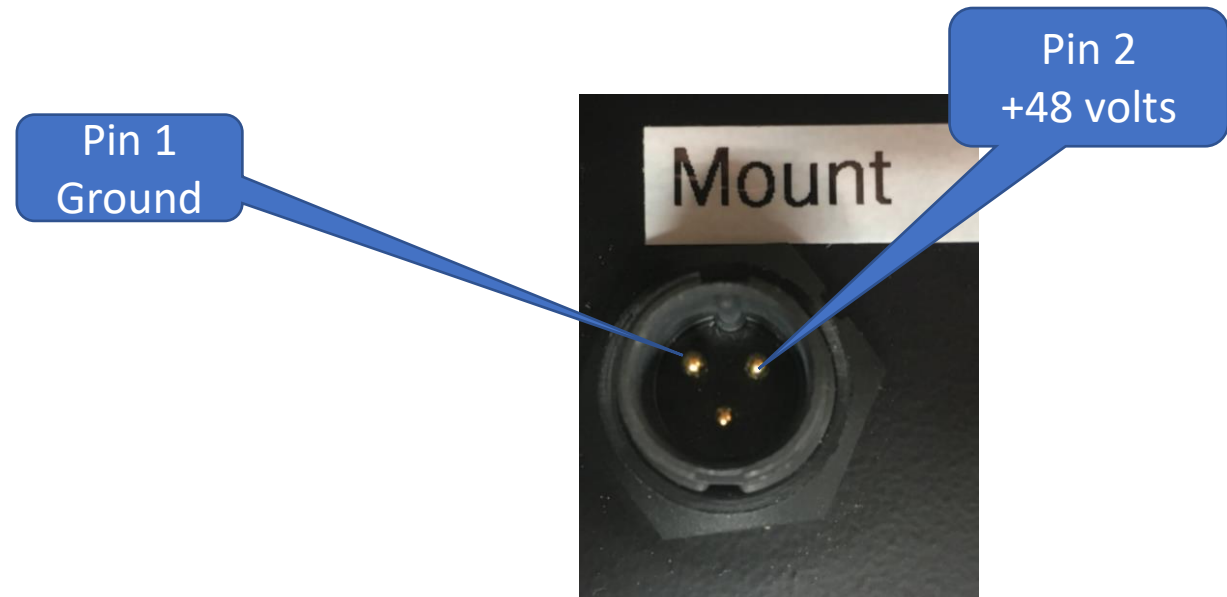
Mount Connector

Paramounts:

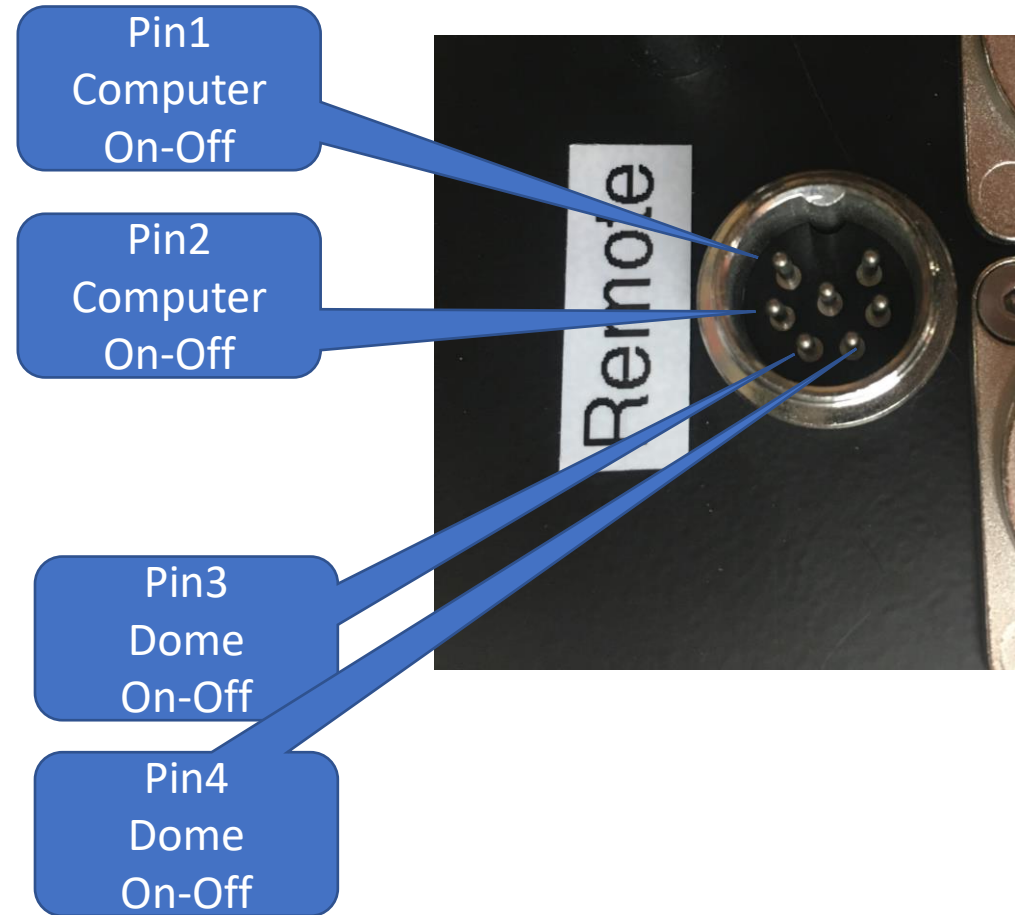
MX 48 Volts

MyT 48 Volts

Taurus 400 48 Volts



7-Pin Jack Remote Control to the Shed



March 8 2022 partial system Burn in after 3-long days of system wiring.

- Computer 1
 - Computer 2
 - Relay boards
 - Remote on off of computer system
-
- Writing of the USB camera 2-3 switch not complete
 - Front Panel wiring not complete

Success...

March 11, 2022 Burn-in..

Simulated Remote Session over internet

- Mount, Camera, Focuser
- 1 second exposures 61mega pixel camera all night.

Front Panel Interface

- Cam1 power
- Focus1 power
- Flat1 power
- Mount power
 - 3-conductor 0.61 diameter
- Dome DB9 remote control, amps analog
- Computer Remote control 0.625 diameter

7-conductor Jack to Control Room				
	1	Computer on-off		
	2	Computer on-off		
	3	Dome on-off DB-15 pin 15	Switches Ground	
	4	Dome on-off DB-15 pin 14	Switches Ground	
	5	DB-15 pin 13	Future Function DB-15 pin 11	
	6	DB-15 pin 12	Future Function DB-15 pin 12	
	7	DB-15 pin 11	Future Function DB-15 pin 13	

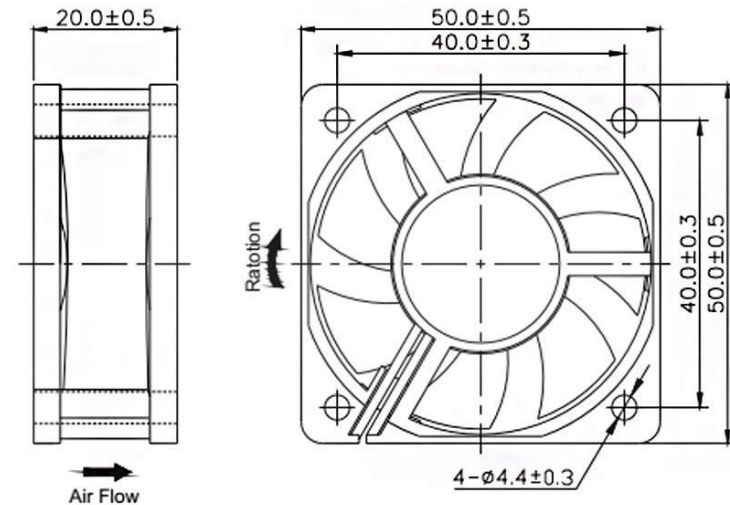
- Cam2 power
 - A or B
- Cam2 USB3
 - A or B
- Focus2 power
 - A or B
- Focus2 USB2
 - A or B
- Flat2 power
 - A or B
- FLat2 USB2
 - A or B

Computer cooling fans

**2-Pack 50mm Replacement Fan 50mm x 20mm 12CFM 12V
2PIN Small Brushless DC Axial Cooling Fan**



► External Dimensions

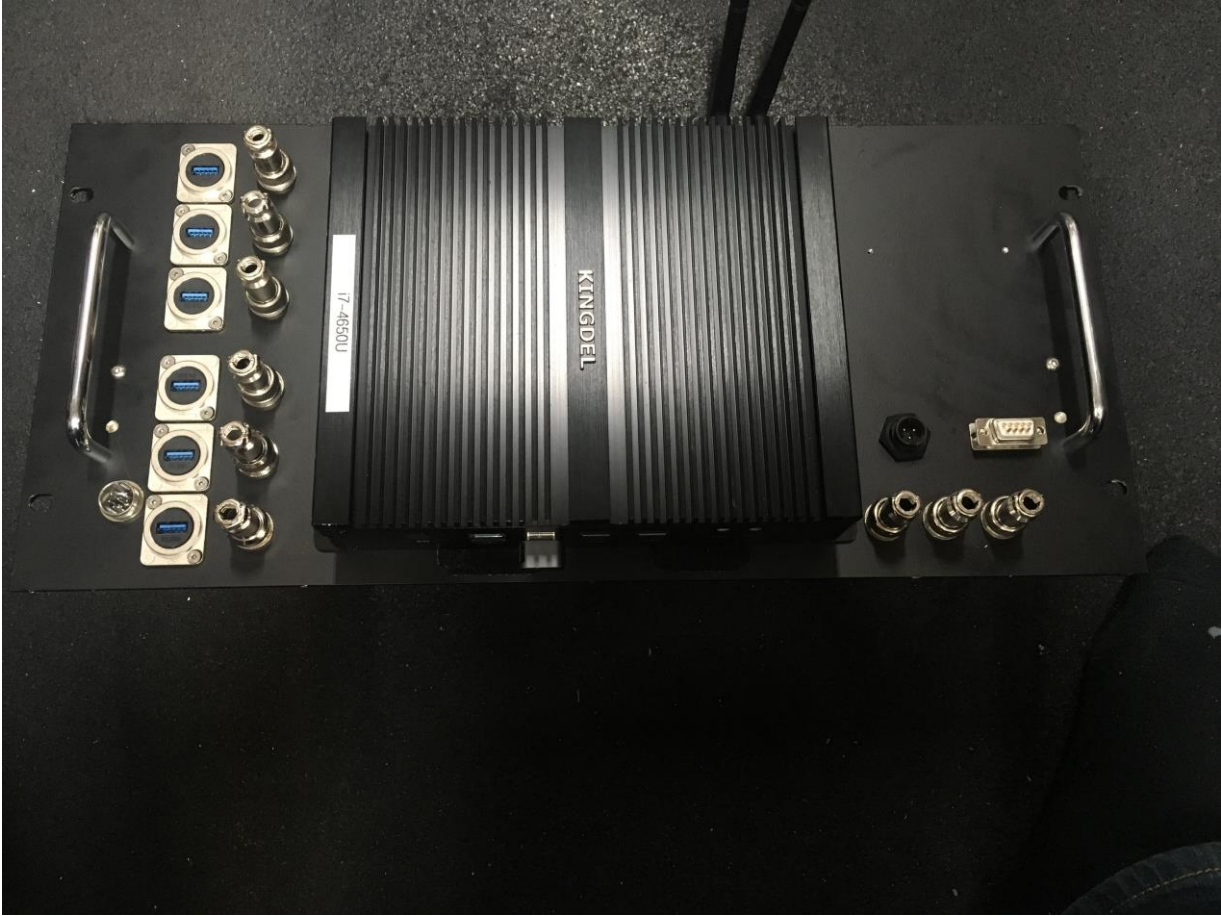
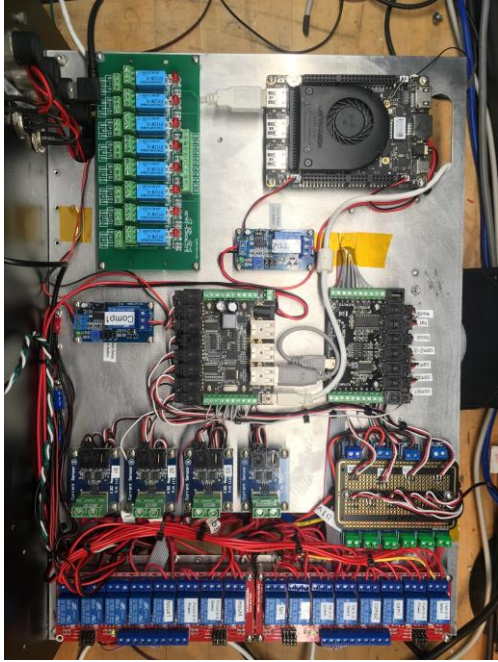


Frame: Plastic(UL:94V-0)

Impeller: Plastic(UL:94V-0)

Lead wire: UL 1007AWG24

Unit: mm



Robodome Failure Rack Gear for Slit Broke

Unable to close the slit all the way 20240109

Had Martin go over and check it 20240110

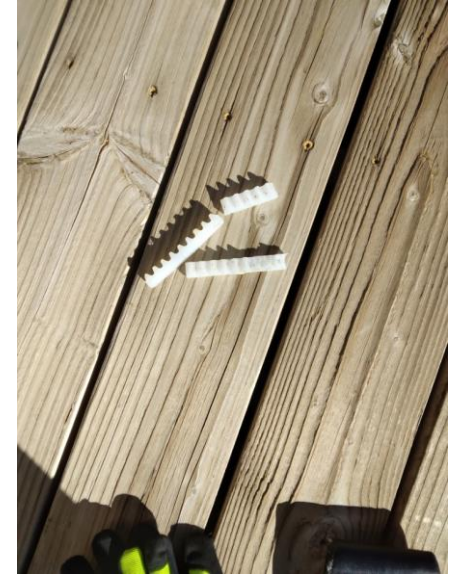
Martin found parts of the rack gear scattered on the deck, texted the image

Had Martin manual assist closing the dome, I used the remote control from Beaumont

Called Jeromy at Technical Innovations for replacement rack gear 20240111

Dome has been discontinued for 5 years, he checked back and found rack,
Shipped.

He said they use devcon for assembly... I'll use Jbweld...



Gears Arrived 20240113

1 tooth per cm (~26 teeth in 10") by 0.5" wide 0.2" tooth depth

Imaging Systems

- NC124 ASI 6200mm
- 300mm F/4 ASI 094C
- 85mm F/2 ASI 094C

