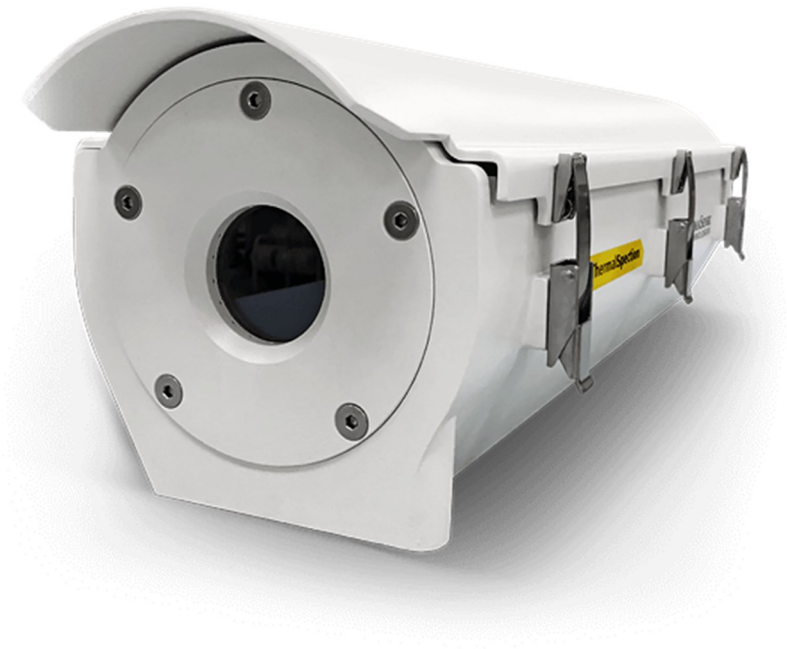
LUMASENSE® TECHNOLOGIES

MANUAL

Thermal Imager Enclosures

Fan Cooled • Vortex Cooled



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Contents

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1 General

1.1 Information about the user manual

This manual provides important information that can be used as a work of reference for installing, operating, and maintaining your LumaSense Fan Cooled (FC) and Vortex Cooled (VC) Enclosure. It is important that you carefully read the information contained in this manual and follow all safety procedures before you install or operate the enclosure. To avoid handling errors, keep this manual in a location where it will be readily accessible.

1.2 Legend

Note: The note symbol indicates tips and useful information in this manual. All notes should be read to effectively install or operate the enclosure.

1.3 Limit of Liability and Warranty

All general information and notes for handling, maintenance, and cleaning of this enclosure are offered according to the best of our knowledge and experience.

LumaSense Technologies is not liable for any damages that arise from the use of any examples or processes mentioned in this manual or in case the content of this document should be incomplete or incorrect. LumaSense Technologies reserves the right to revise this document and to make changes from time to time in the content hereof without obligation to notify any person or persons of such revisions or changes.

All products from LumaSense Technologies have a regionally effective warranty period. Please check our website at http://info.lumasenseinc.com/warranty for up-to-date warranty information. This warranty covers manufacturing defects and faults which arise during operation, only if they are the result of defects caused by LumaSense Technologies.

There are no user-serviceable components in the enclosure. Disassembly of the enclosure is not allowed. The warranty is VOID if the enclosure is disassembled, tampered with, altered, or otherwise damaged without prior written consent from LumaSense Technologies; or if considered by LumaSense Technologies to be abused or used in abnormal conditions.

1.4 Unpacking the Enclosure

Before shipment, each enclosure is assembled and tested at the LumaSense Factory. When unpacking and inspecting your enclosure, you need to do the following:

1. Check all materials in the container against the enclosed packing list.
2. LumaSense Technologies cannot be responsible for shortages against the packing list unless a claim is immediately filed with the carrier. Final claim and negotiations with the carrier must be completed by the customer.
3. Carefully unpack and inspect all components for visible damage. If you note any damage or suspect damage, immediately contact the carrier and LumaSense Technologies, Inc.
4. Save all packing materials, including the carrier's identification codes, until you have inspected all components and find that there is no obvious or hidden damage.

Note: LumaSense encourages you to register your product with us to receive updates, product information, and special service offers: https://www.lumasenseinc.com/EN/service-support/support/customer-support/product-registration/

1.5 Malfunction or Service Request

Contact LumaSense Technologies Technical Support in case of a malfunction or service request. Provide clearly stated details of the problem as well as the instrument model number and serial number. Upon receipt of this information, Technical Support will attempt to locate the fault and, if possible, solve the problem over the telephone.

If Technical Support concludes that the instrument must be returned to LumaSense Technologies for repair, they will issue a Return Material Authorization (RMA) number.

Return the instrument upon receipt of the RMA number, transportation prepaid. Clearly indicate the assigned RMA number on the shipping package exterior. Refer to Section 1.8, Shipments to LumaSense for Repair, for shipping instructions.

Technical Support can be contacted by telephone or email:

Santa Clara, California

Telephone (408) 727-1600 or 1-800-631-0176

Email support@lumasenseinc.com

Frankfurt, Germany

Telephone +49 69 97373 0

Email support@lumasenseinc.com

1.6 Shipments to LumaSense for Repair

All RMA shipments of LumaSense Technologies instruments are to be prepaid and insured by way of preferred carrier. For overseas customers, ship units air-freight, priority one.

The instrument must be shipped in the original packing container or its equivalent. LumaSense Technologies is not responsible for freight damage to instruments that are improperly packed.

Contact us to obtain an RMA number (if one has not already been assigned by Technical Support). Clearly indicate the assigned RMA number on the shipping package exterior.

Send RMA Shipments to your nearest technical service center:

Santa Clara, California	**Frankfurt, Germany**
LumaSense Technologies, Inc. 3301 Leonard Court Santa Clara, CA 95054 USA Telephone: (408) 727-1600 1-800-631-0176	LumaSense Technologies GmbH Kleyerstr. 90 60326 Frankfurt, Germany Telephone: +49 69-97373 0
Email: support@lumasenseinc.com	**Email:** support@lumasenseinc.com

1.7 Disposal / Decommissioning

Inoperable enclosures must be disposed of in compliance with local regulations for electro or electronic material.

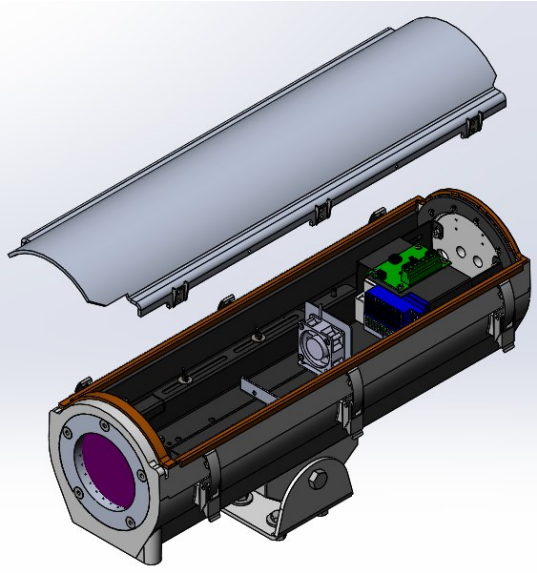
2 Introduction

The FC and VC Enclosures for LumaSense Thermal Imagers are designed to protect the infrared thermal cameras from weather and temperature changes, even in hazardous areas. Robust and reliable for long-term installation, these enclosures can be used with M7500, MC320, MCL640, or MCS640 thermal imaging cameras from LumaSense Technologies.

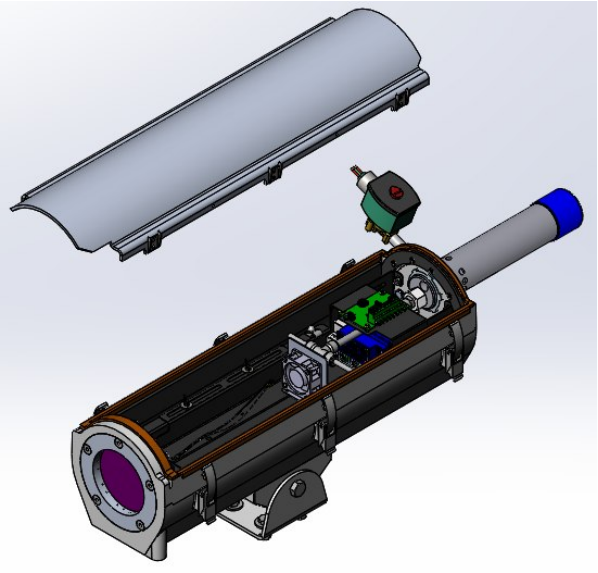
These enclosures ensure that the thermal cameras measure accurately even when subjected to high temperatures and direct sunlight. For operating in colder temperatures, a heater is also included with these enclosures for operation in as low as -30 °C. The window purge can be used if dust and debris is an issue and the hazardous area purge controls are also an available option.

Key features include:

- Top load for easy serviceability
- Removable lid for easy access during installation
- Tool-less latches and camera attachment
- Thermostat controlled cooling (standard) and heating (optional)
- Outlets on rear plate for cable glands or rigid conduits
- Removable air purgeable window holder
- Internal power supply



Fan Cooled Enclosure



Vortex Cooled Enclosure

2.1 Standard Base Enclosures

Part	Description
812-0302-01	VC Enclosure, 30 mm (1.2") Germanium window, integrated camera tray and power supply for MC320L/M7500 (53° lenses)
812-0302-02	VC Enclosure, 57 mm (2.25") Pyrex window, integrated camera tray and power supply for MCS640 (all lens)
812-0302-03	VC Enclosure, 100 mm (4") Germanium window, integrated camera tray and power supply for MC320L/M7500 (11°, 21°, 75°, lenses)
812-0302-05	VC Enclosure, 100 mm (4") Germanium window, integrated camera tray and power supply for MCL640 (14°, 26°, 57°, 77° lenses)
812-0302-11	FC Enclosure, 30 mm (1.2") Germanium window, integrated camera tray and power supply for MC320L/M7500 (53° lenses)
812-0302-12	FC Enclosure, 57 mm (2.25") Pyrex window, integrated camera tray and power supply for MCS640 (all lens)
812-0302-13	FC Enclosure, 100 mm (4") Germanium window, integrated camera tray and power supply for MC320L/M7500 (11°, 21°, 75°, lenses)
812-0302-15	FC Enclosure, 100 mm (4") Germanium window, integrated camera tray and power supply for MCL640 (14°, 26°, 57°, 77° lenses)

2.2 Optional Accessories and Spare Parts

Part	Description
812-0341-01	Sunshade Kit
812-0349-01	Spare pivot bracket kit
812-0348-01	Reconditioning gasket and hardware kit
812-0342-01	Tool lock latches kit (replaces the quick-release latches)
19516-4	Spare Germanium (Ge) window, 4" (100mm) diameter
112-0161-01	Spare Germanium (Ge) window, 30 mm diameter x 3 mm thick
10128-6	Spare Pyrex window, 2.25" (57 mm) for VC enclosure
812-0347-01	Type Z (CL I Div 2) purge kit, with pressure switch and 120 VAC / 15 A input

3 Technical Specifications

Performance	
Temperature ranges:	Fan Cooled: -30 to 40 °C Vortex Cooled: -30 to 65 °C
Field of View:	Varies with camera (consult with sales)
IP Rating:	IP 66, NEMA 4X

Mechanical	
Cooling Air Budget:	15 cfm @ 90-100 psi (1/4" NPT connection)
Heater Power:	100 W
Housing Material:	Aluminum Alloy (powder coated)
Weight:	~25 lbs (11 kg)

Electrical	
Power Input:	Universal AC standard (DC optional)
Connection:	1/2" NPT port to internal terminal contacts
Communication:	Ethernet 100, 1/2" NPT for Ethernet cable conduit

Options	
Hazardous Area Purge	Available with Type Z purges certified UL, CSA, and IECEx
Window Purge	Included and use is optional, connection 1/4" NPT

Note: Product specifications are subject to change.

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4 Installation

The VC Enclosure is supplied with an adjustable mounting base and ports on the rear panel for electrical wiring connections. This chapter covers details for installing the enclosure at your site.

Note: The installation of the FC or VC Enclosure needs to be done in a clean environment to prevent dust and debris from getting into the enclosure.

To Install the FC or VC Enclosure (general steps):

1. Replace the enclosure latches (optional)
2. Mount the base bracket
3. Remove the enclosure cover
4. Remove the camera plate from the enclosure
5. Fasten the camera to the plate and reattach the plate to the enclosure
6. Connect the camera to the power (pre-wired from the circuit board)
7. Connect the camera to the network (via Ethernet)
8. Attach the temperature sensor to the top of the camera (pre-wired)
9. Connect any necessary conduit to the back panel of the enclosure.
10. Connect the power supply to the terminal block (AC input)
11. Reattach the enclosure cover
12. Mount the enclosure to the base bracket
13. Attach the Sunshade (optional)
14. Mount and connect the hazardous purge kit (optional)
15. Attach the window purge to compressed air (optional)
16. Connect the Vortex Cooler to compressed air (not applicable for FC enclosures)

4.1 Parts and Tools

Ensure you have the following parts and tools prior to starting installation:

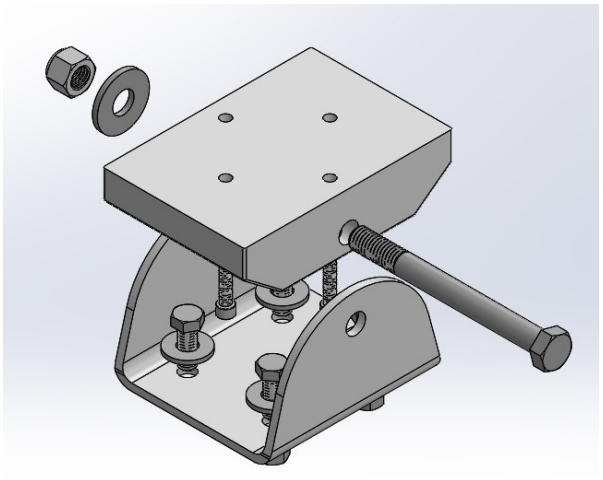
- 3/8" Hex Wrench
- 1/2" Hex Wrench
- Adjustable crescent wrench
- Teflon tape or another sealant for conduit
- Small flat head screwdriver
- Phillips screwdriver
- Ferrules
- Power wiring
- AC Power In (for power wiring)
- Ethernet cable

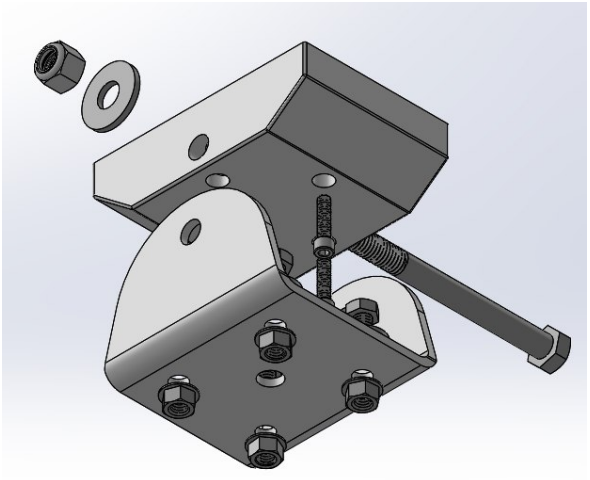
4.2 Replacing the Enclosure Latches (optional)

If desired, the standard “quick-release latches” may be removed from the enclosure and replaced with the “tool lock latches” (shown below).

4.3 Mounting the Base Bracket

The VC Enclosure includes an adjustable mounting bracket with four mounting holes in the base plus one center hole. This allows for flexible mounting options.

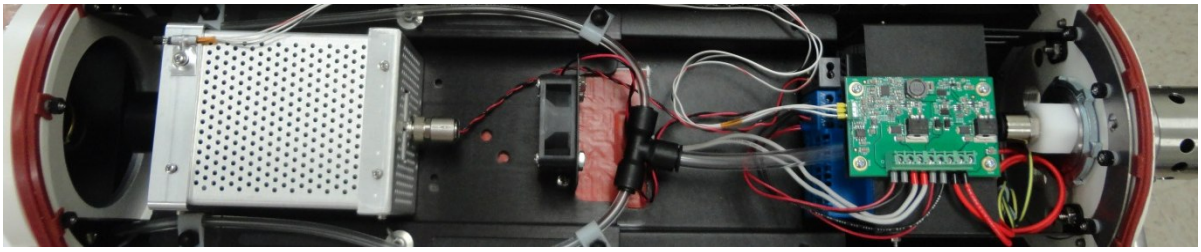


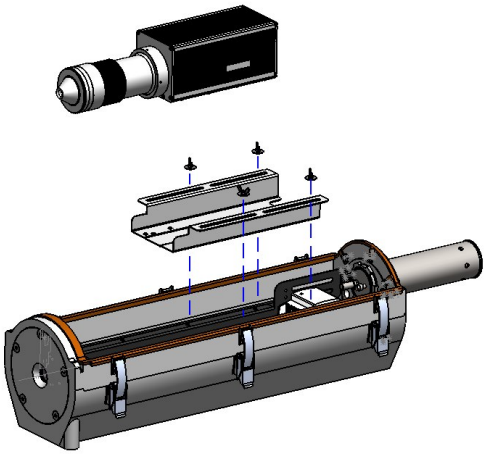


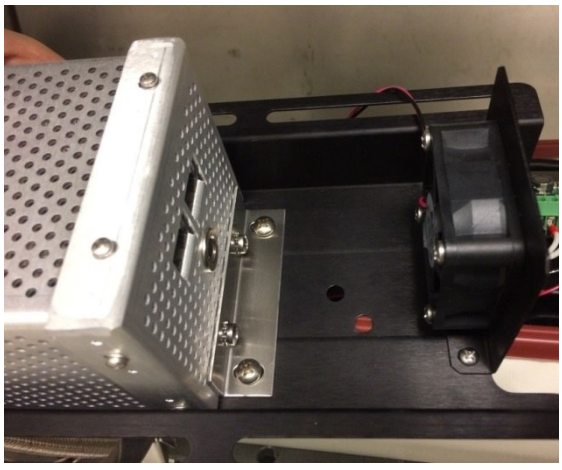
4.4 Mounting the Infrared Camera

A single adjustable plate is provided with the enclosure that can attach to any of the compatible cameras. This plate can be easily removed from the enclosure for attaching the camera to the appropriate holes and for sliding the plate forward and backward for adjusting the distance from the front window to get a clear view with the camera.

Note: You may need to partially remove the tubing that is attached to the inside of the enclosure to remove the camera plate. DO NOT REMOVE ALL THE TUBING.

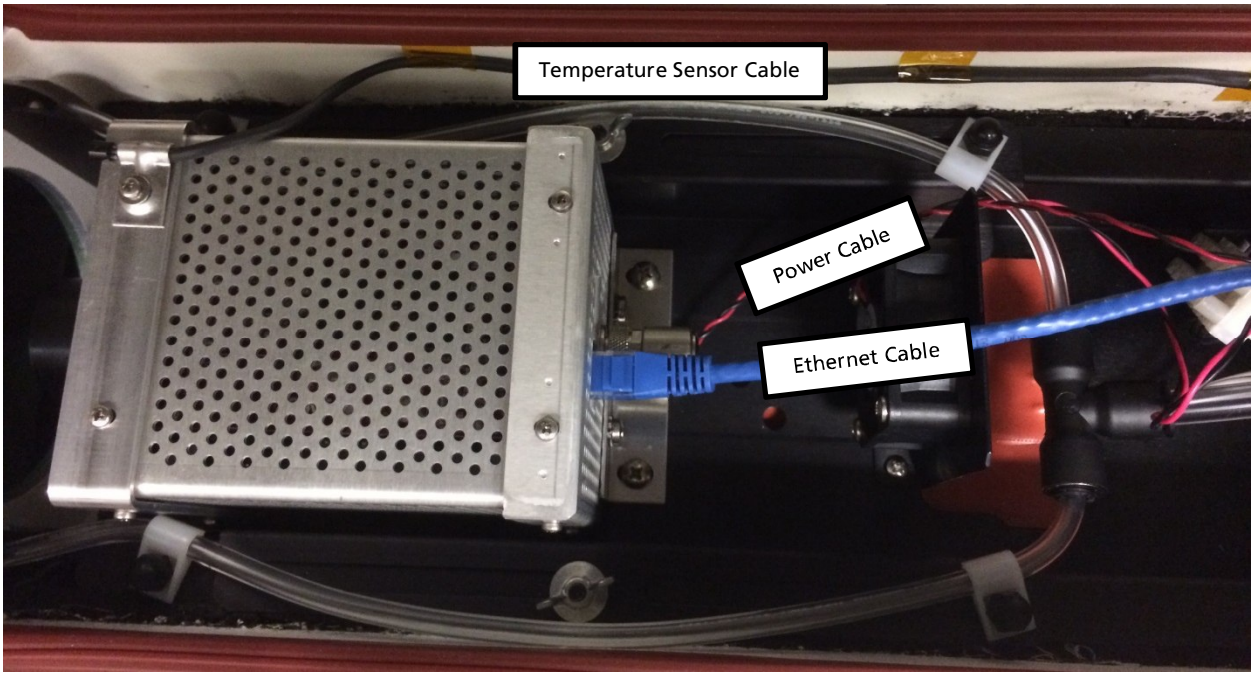






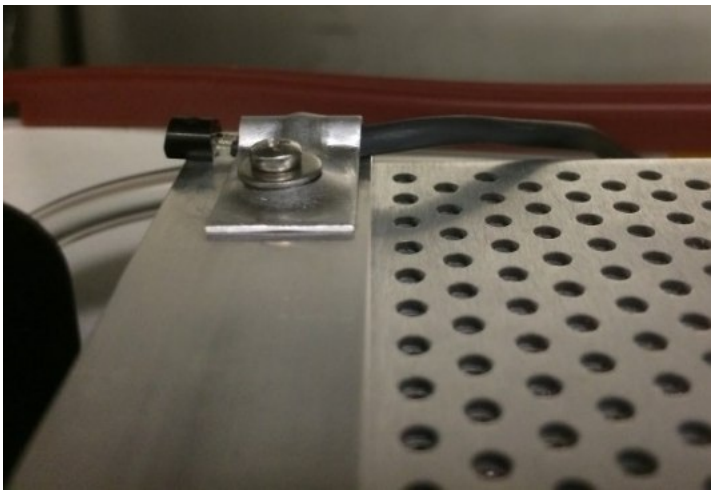
4.5 Connecting the Infrared Camera

Once the camera is properly mounted, connect the pre-wired power cable from the circuit board to the back of the camera. The camera connects to the network via Ethernet connection.



4.6 Attaching a Temperature Sensor

A temperature sensor is required when using a camera enclosure. This will be pre-wired to the circuit board and will allow the heating and cooling system to run at a specific temperature. For optimum performance, the sensor should be attached to the top front-right corner of the camera.



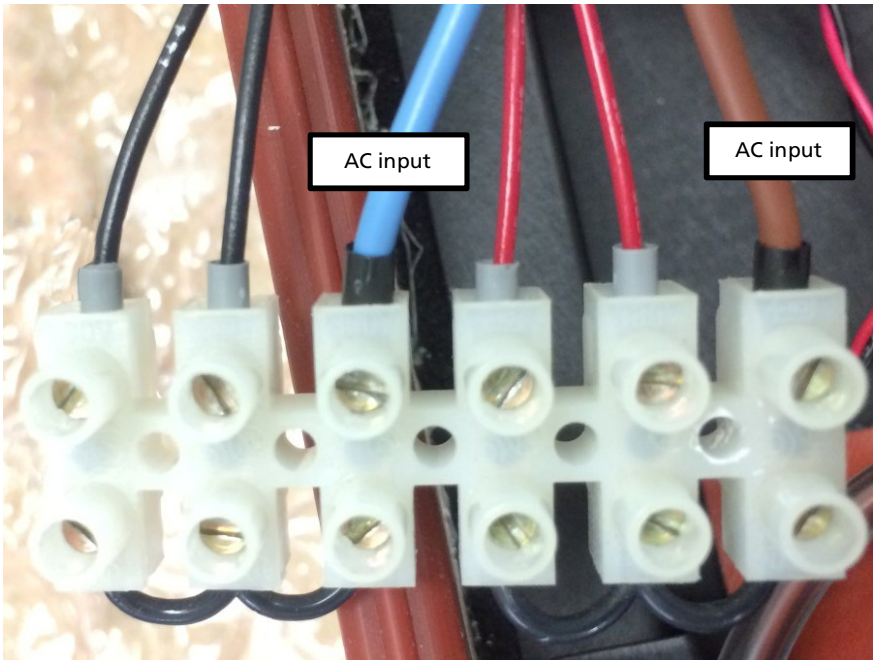
4.7 Connecting the Conduit

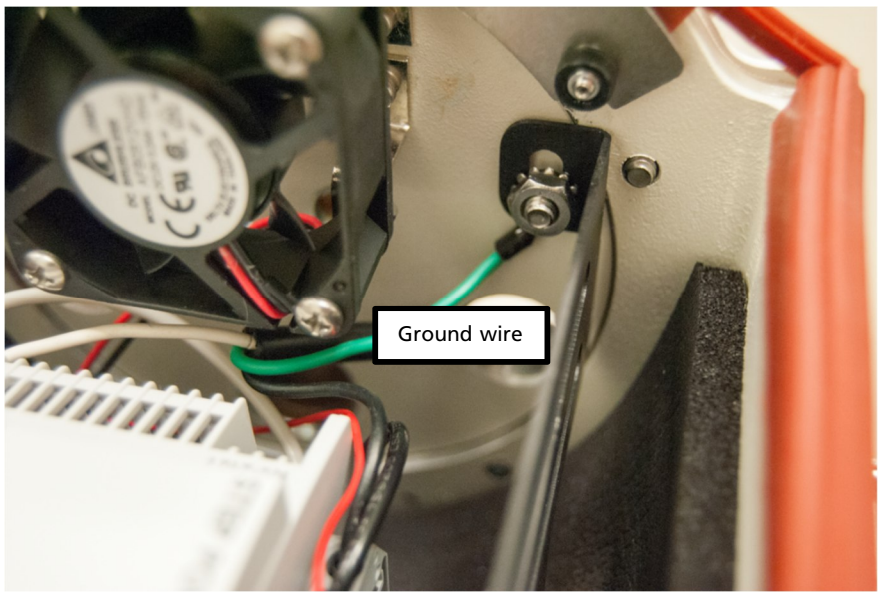
For optimal performance and to maintain the ingress protection (IP) of the enclosure, sealed conduit need to be used for all external connections (electrical, Ethernet, and air purge, etc.). The FC and VC enclosures are both pre-drilled with five (5) holes for conduit connections. Refer to sections 5.2 and 5.5 for the dimensions.

Note: Any holes that are not used for electrical connections must remain plugged.

4.8 Connecting to the Power Supply

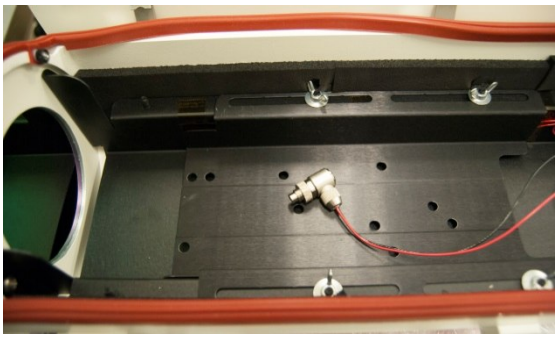
Power wires need to be connected from the power supply to the terminal block. Ground wire needs to be connected as well. Refer to the electrical schematics provided in sections 5.3 and 5.6.



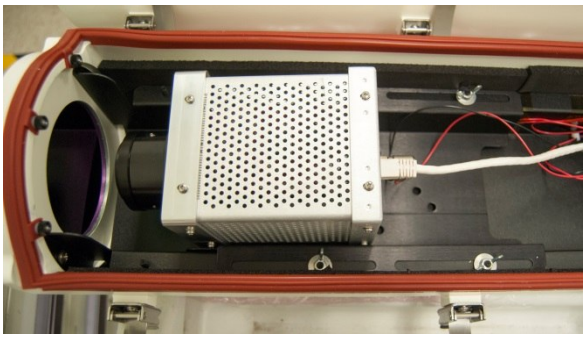


4.9 Attaching the Enclosure Cover

When reattaching the top cover to the enclosure, ensure that the seal is properly aligned and flush around the entire inside edge.



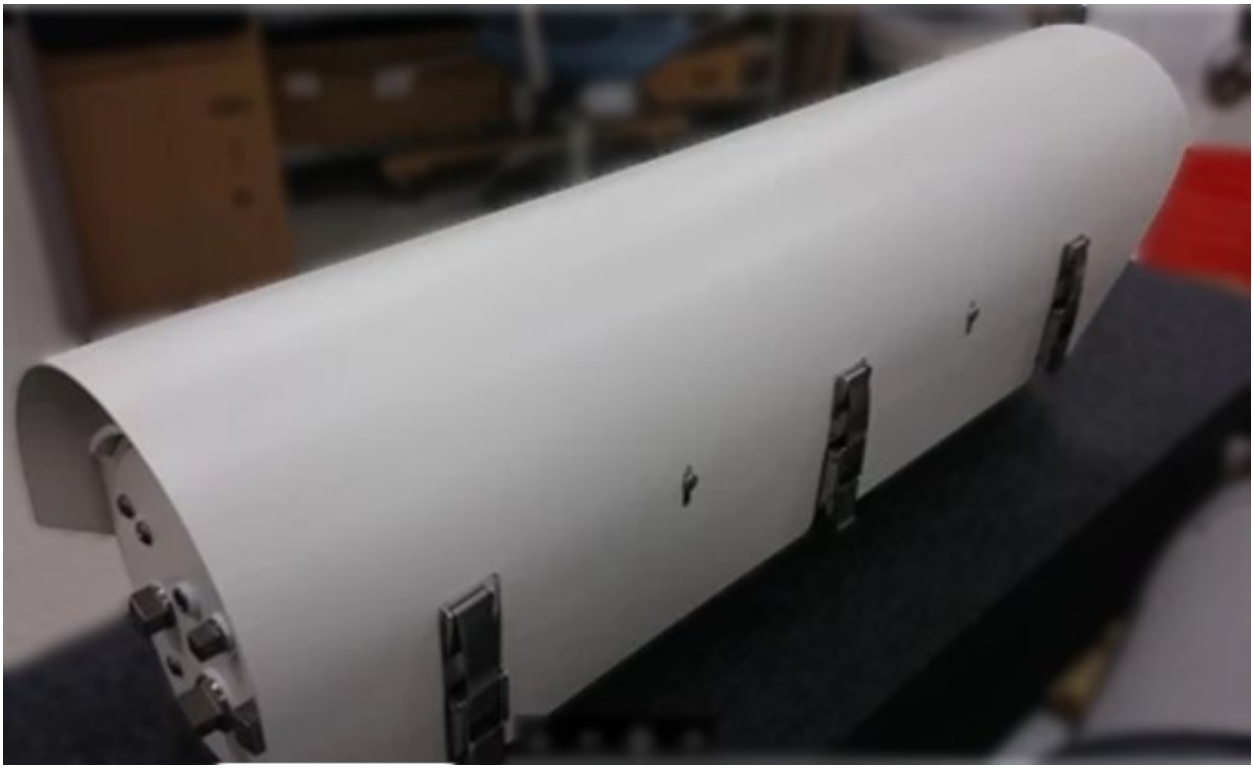
Bad Seal



Good Seal

4.10 Attaching the Sunshade (optional)

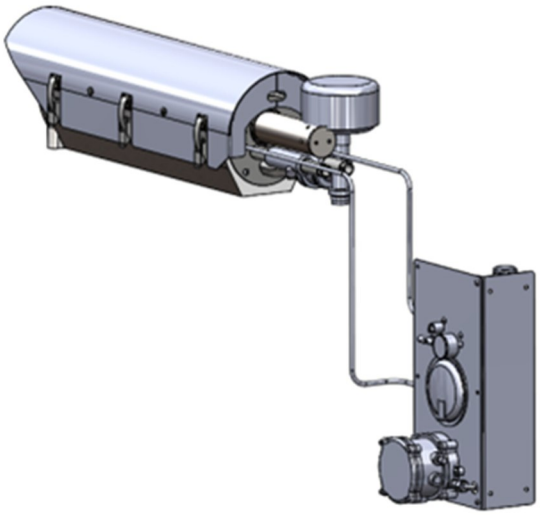
The sunshade is a one-piece design. Simply slide it into place (flush with the latches) and attach the four (4) screws.

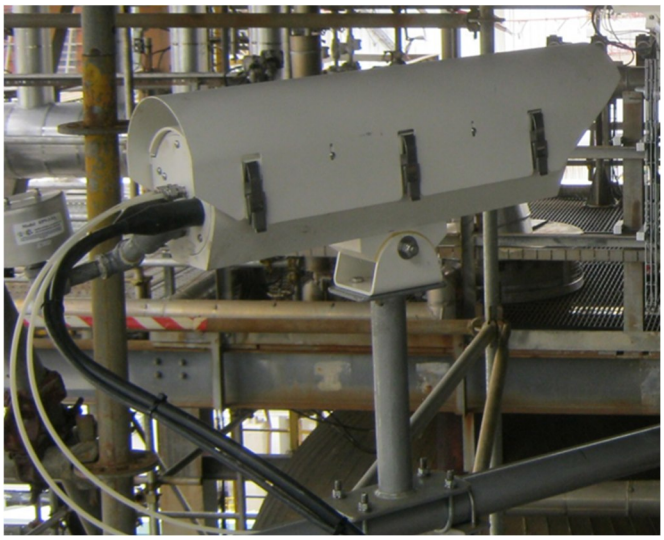


Note: The long end should extend past the front window of the enclosure.

4.11 Connecting the Hazardous Area Purge Kit (optional)

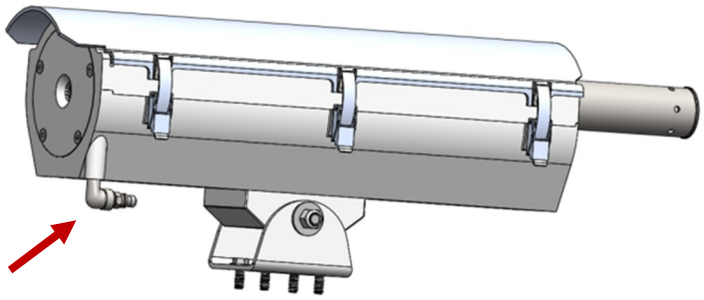
For hazardous areas, a purge device/control unit can be connected to the enclosure. This will keep the air pressure inside the chamber greater than the outside if an explosion should happen.

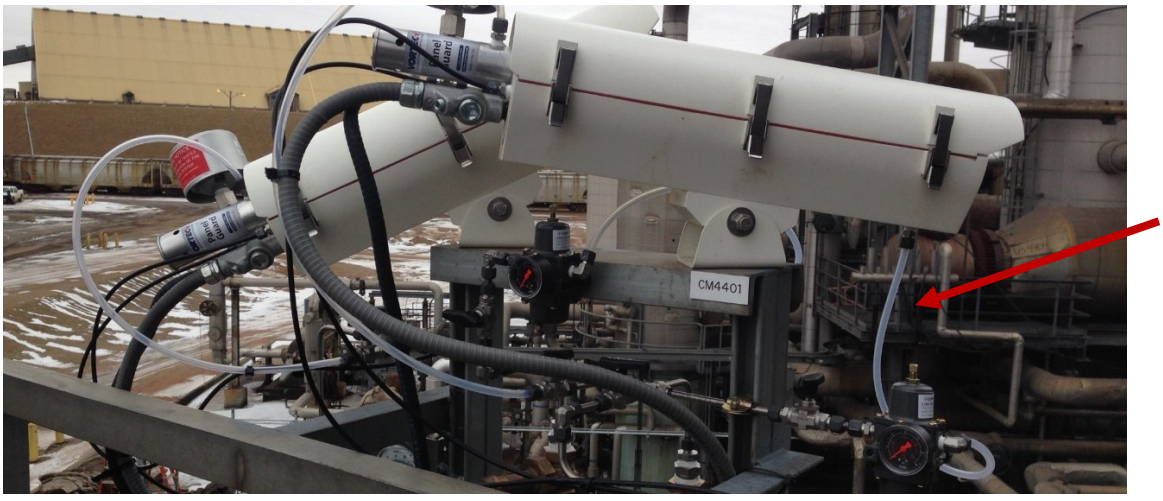




4.12 Connect the Window Purge (optional)

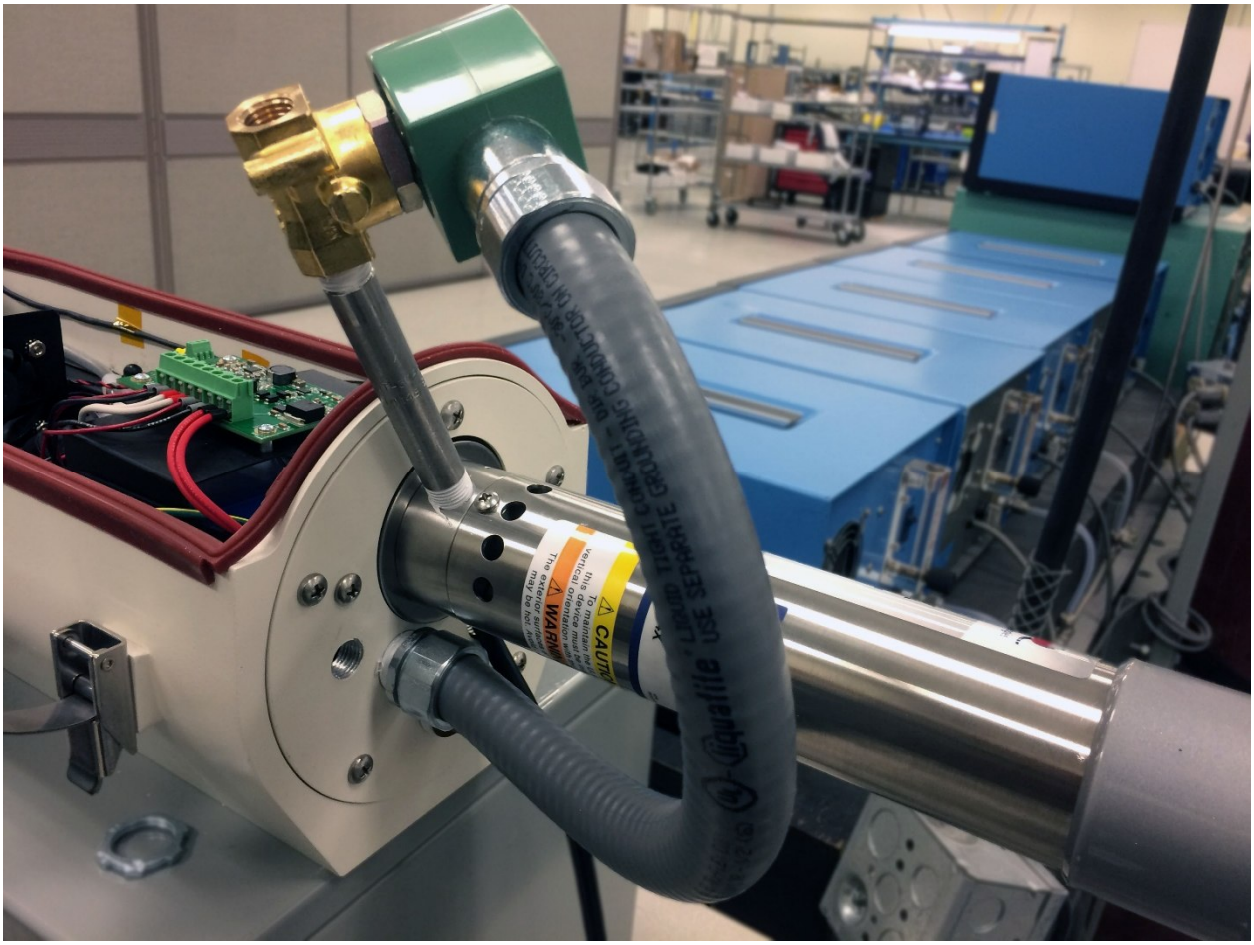
The Window Purge feature is included with every enclosure, but its use is optional. If desired, the window purge can be used by attached a fitting and compressed air to the hole at the bottom of the enclosure.





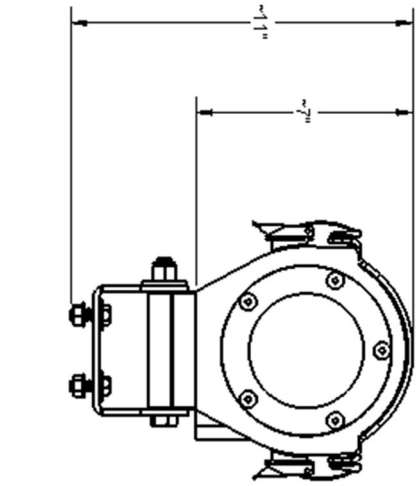
4.13 Attaching the Vortex Cooler

The Vortex Cooler will function as an automated solenoid “on-off switch”. This will be pre-wired and mounted to the enclosure with the necessary conduit. Once the enclosure is mounted to the base bracket, a 1/4" ANPT fitting and extension will then need to be connected to compressed air.



5 Dimensional Drawings and Diagrams

5.1 Fan Cooled Enclosure (Main Body)



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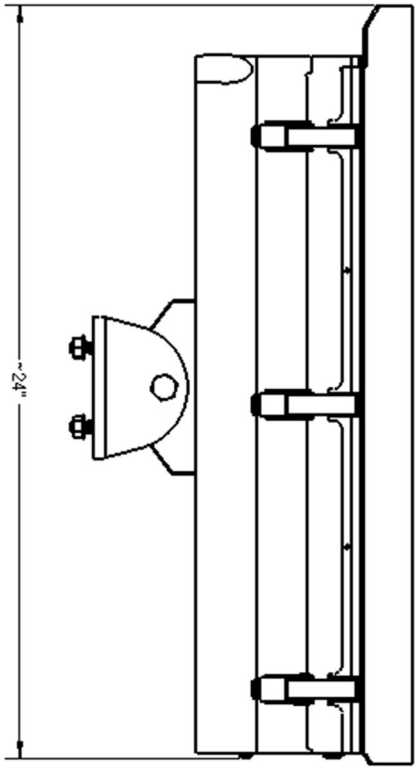
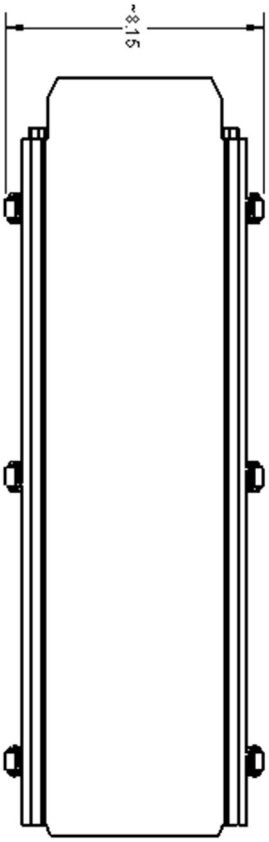
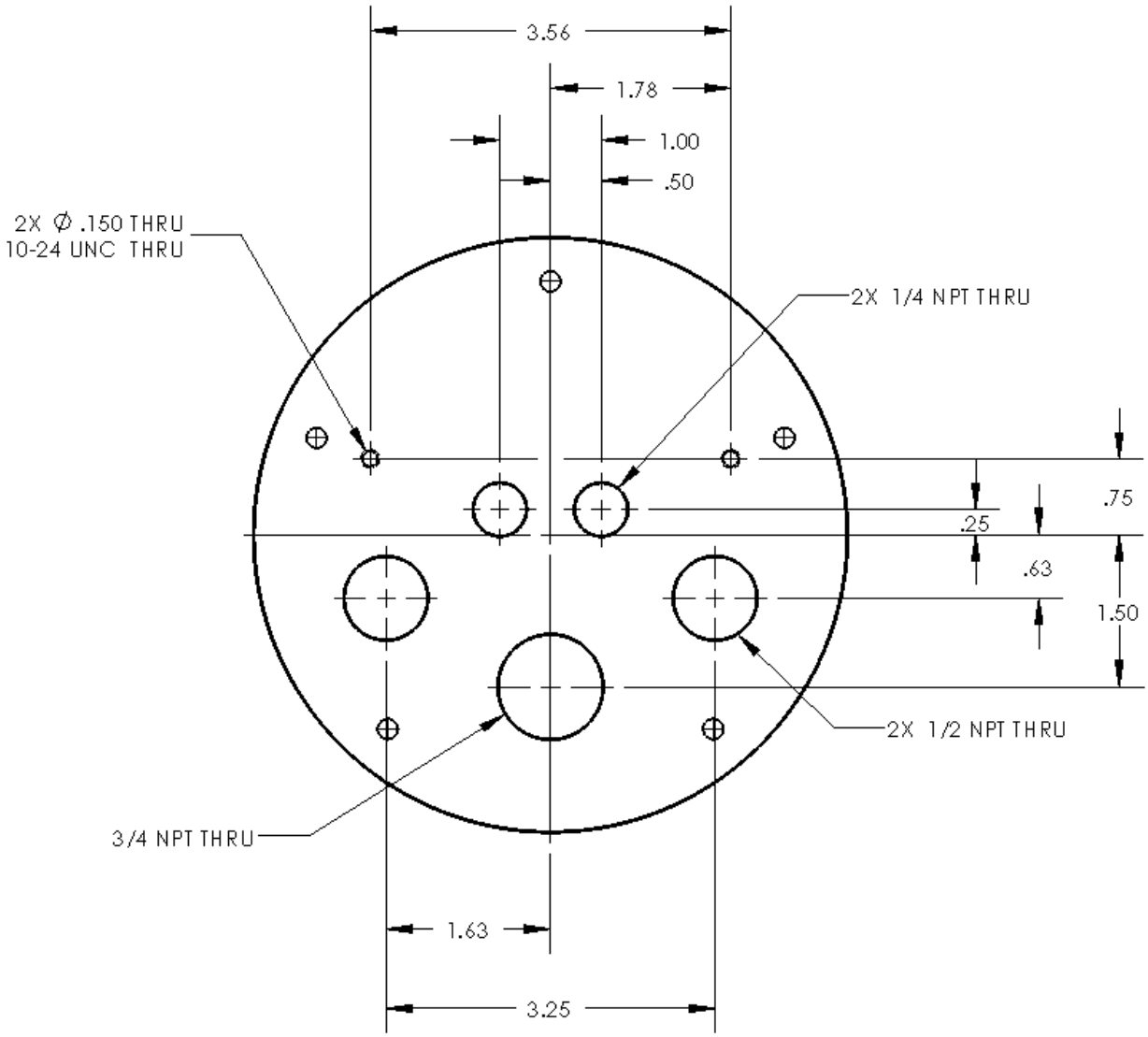
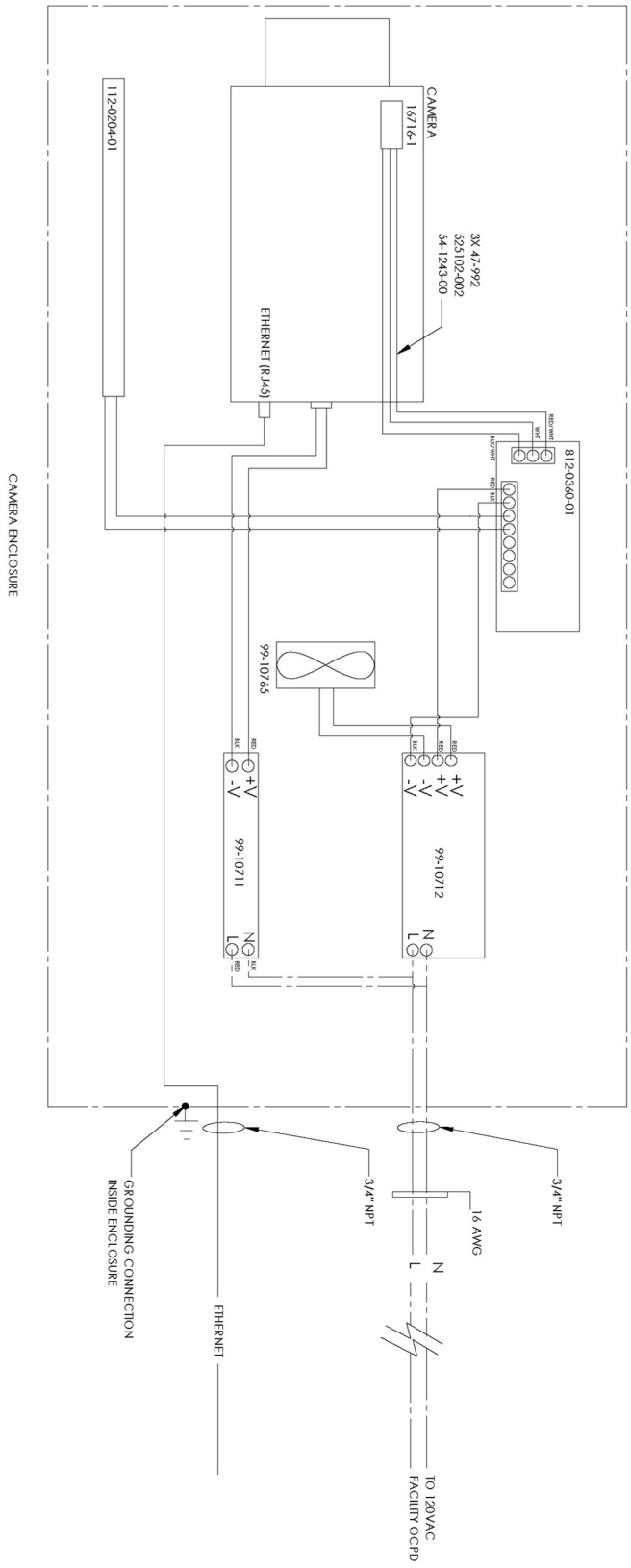




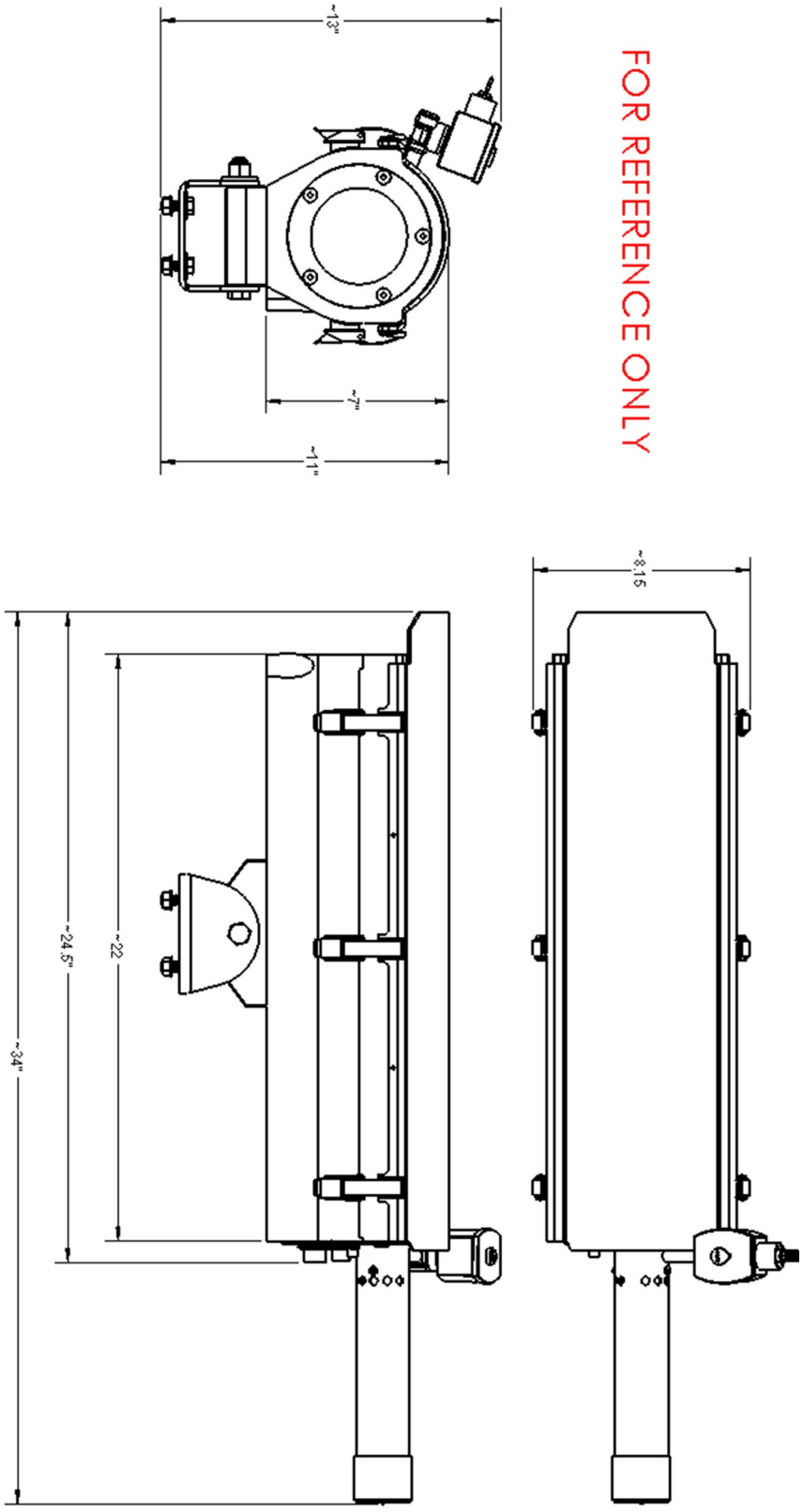
5.2 Fan Cooled Enclosure (Back Plate)



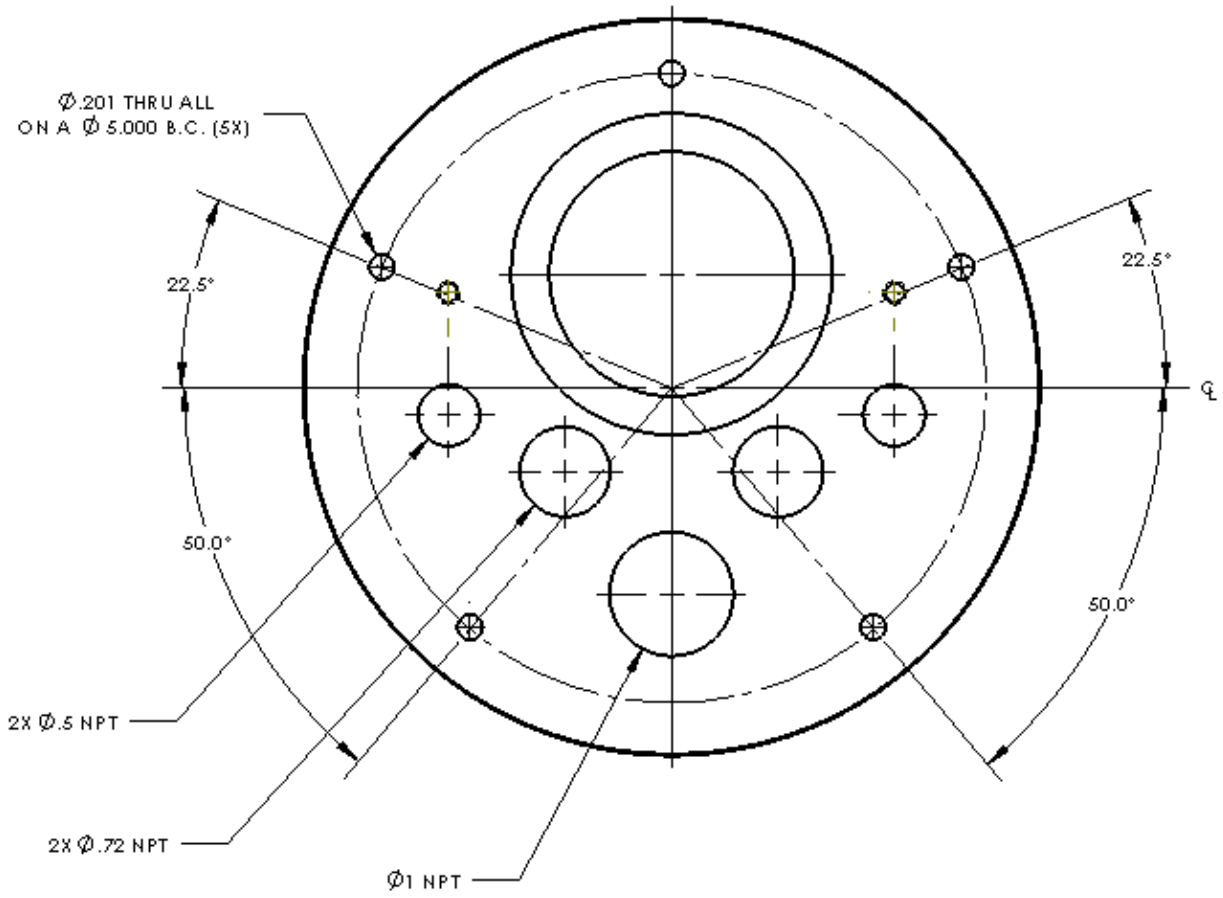
5.3 Fan Cooled Enclosure (Electrical Schematic)



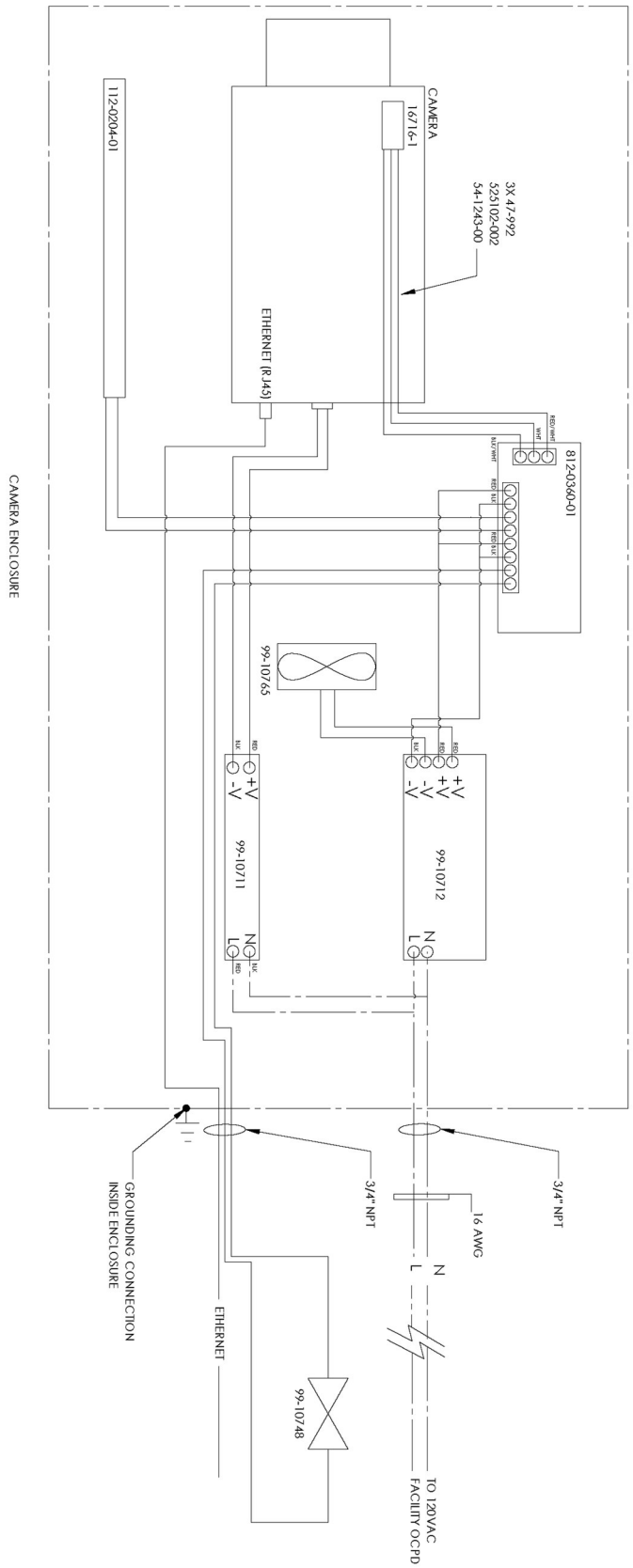
5.4 Vortex Cooled Enclosure (Main Body)



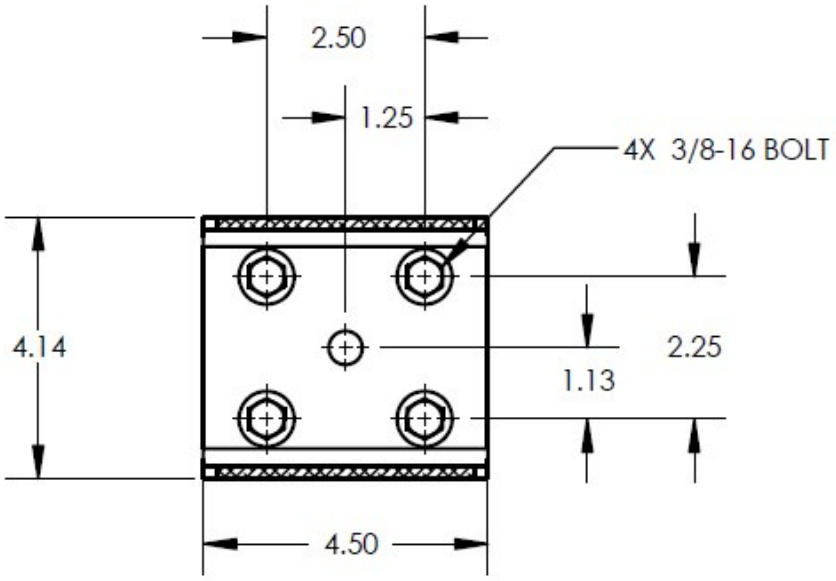
5.5 Vortex Cooled Enclosure (Back Plate)



5.6 Vortex Cooled Enclosure (Electrical Schematic)



5.7 Base Bracket Mounting Hole Pattern



MOUNTING DETAIL

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6 Index