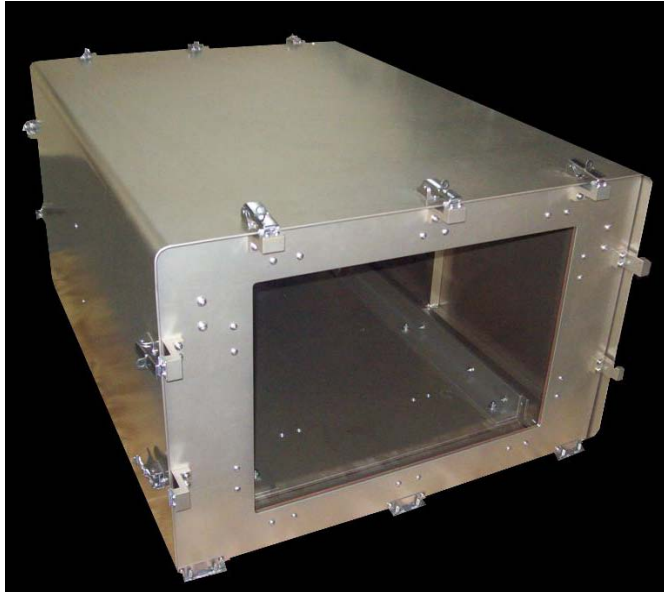


User Manual and Installation Guide



November, 2008

Cyclone 8000, 8200, 8400 Enclosures

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1 Introduction

The Cyclone™ Projector Enclosure

Thank you for purchasing the Cyclone large format digital projector enclosure. Although originally intended for outdoor environments, the design of the Cyclone is such that it can satisfy many other needs. Not only will it protect against hostile outdoor conditions, but also against particulate, smoke, and other indoor conditions that can shorten the life of your high-output digital projector.

Using This Manual

This manual covers all Cyclone Models in the 8000 series. Please read it in its entirety before starting work. All the information contained is important, and should be read carefully before proceeding. Heed all warnings and advisories.

Icon Key:

① Valuable information

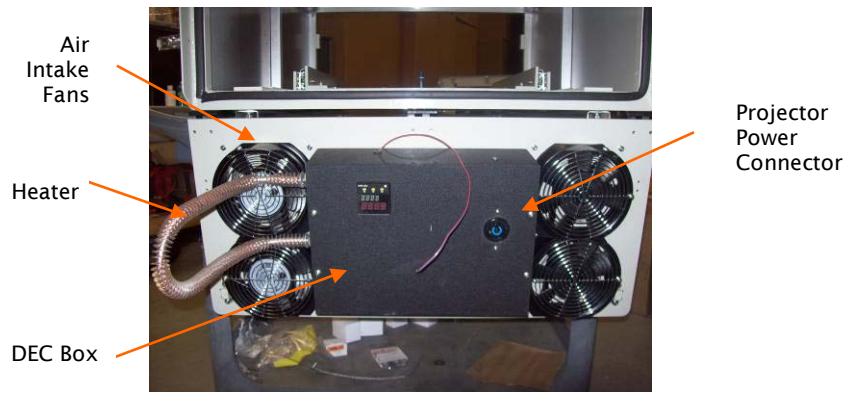
⚡ Electrical Warning

⚠ Safety Information

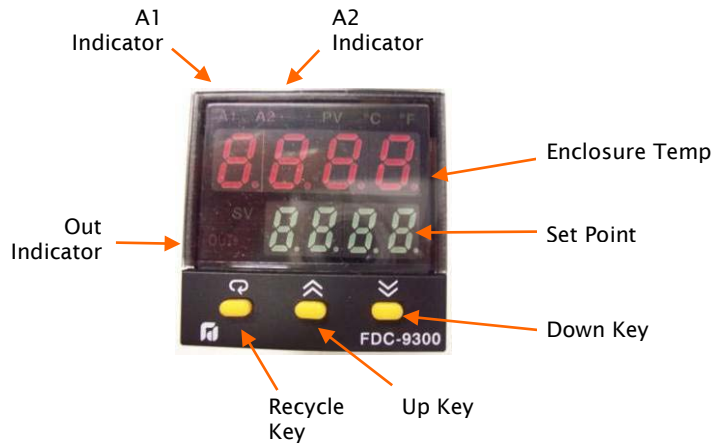
1.1 Identifying Major Parts:



View from rear - door closed



View from rear - door open












Climate controller display

2 Installation





2.1 Safety and Warnings

These warnings are for your protection. Failure to comply may result in serious injury or death. Manufacturer assumes no responsibility for damages or injury incurred by misuse or mishandling of product.



-  **Do not** attempt to install or operate the enclosure before fully reading and understanding this manual
-  **This enclosure is HEAVY – do not attempt to lift with fewer than two people**
-  **Never** allow anyone who has not read this manual to open the enclosure or perform maintenance on the luminaire within.
-  **Never** leave the enclosure unattended when open.
-  Even after power has been disconnected from the enclosure, the internal heater may remain warm. Do not touch it unless you can be sure that the power has been off for at least one hour.
-  **Always** make sure all bolts are tight and safety cables are in place after performing any form of maintenance on the unit.
-  **Observe** all posted warnings in the enclosure itself.
-  **Do not** open any electrical boxes until power has been shut off to all supply lines to the enclosure (including the one powering the projector).
-  **Do not** open the enclosure in wet weather.

Tools and Equipment

To install the enclosure, you will need the following items:

-  Crescent wrench
-  Phillips screwdriver
-  Proper wiring installation equipment (for line power and DMX)
-  Any equipment listed in the fixture manufacturer’s fixture-specific installation directions

2.3 Mounting the Cyclone Enclosure

-  The Cyclone enclosure must be mounted horizontally, on a solid structure rated for the weight of the enclosure, the projector inside it, and two people.
-  Snow – if installed outside in cold regions, the bottom of the Cyclone enclosure must be at

least 2' (60cm) above maximum height of any snowfall or drifting snow, subject to local conditions. If snow is not a consideration, then enclosure may sit on ground as long as proper drainage is provided.

- ① Enclosure will need to be powered at all times, although projector may not be.
- ① LEAVE ADEQUATE CLEARANCE BEHIND ENCLOSURE TO OPEN REAR DOOR FOR SERVICE
- ① *Tempest Lighting recommends the use of stainless steel mounting hardware.*

The Cyclone enclosure is provided with a pair of Unistrut channels under the enclosure base, for mounting to your structure. You may use standard Unistrut accessories, or purchase either of the mounting kits available from Tempest Lighting – four kits are required per enclosure.

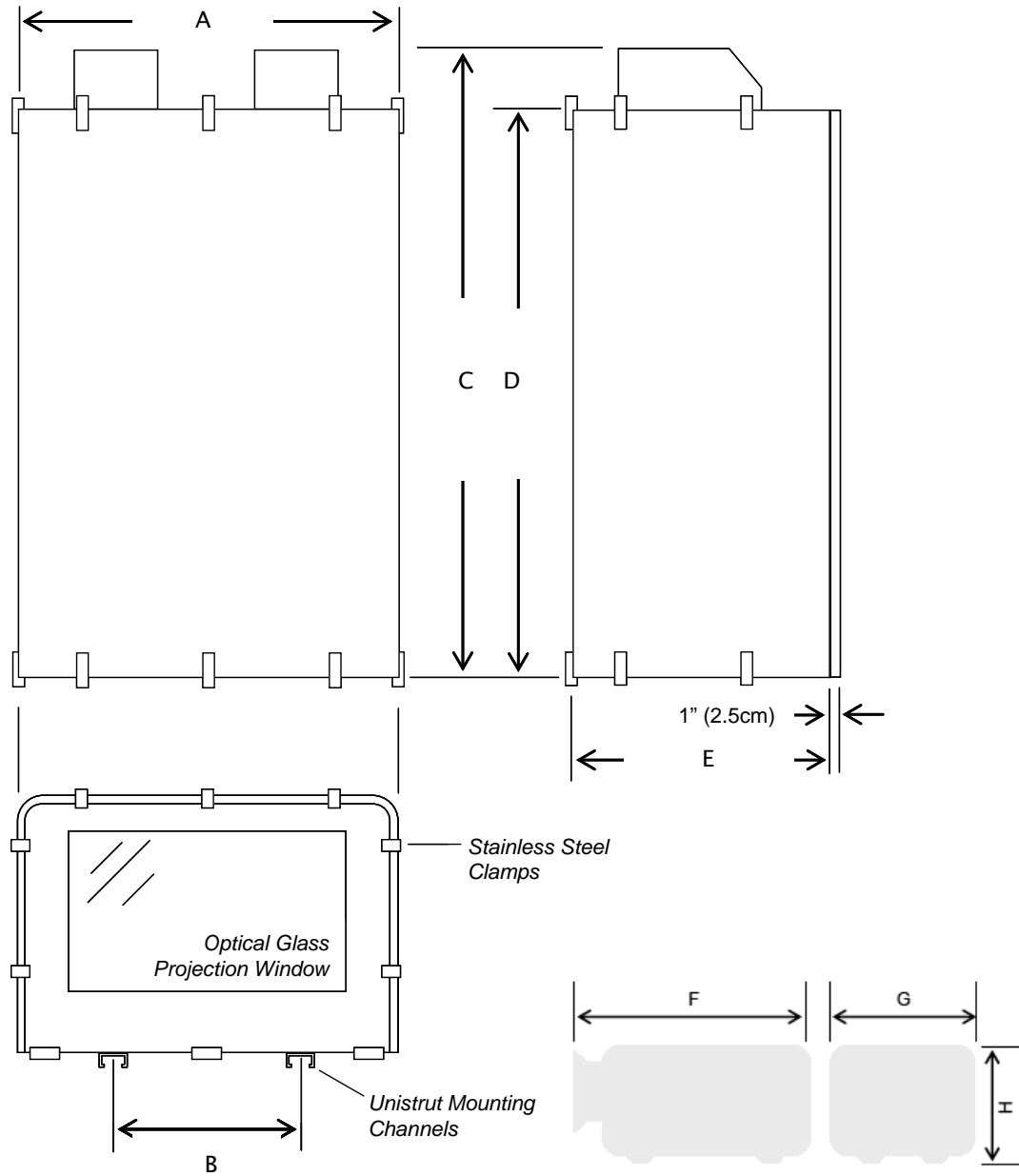


4900.MB *Stainless Steel Unistrut channel nut, bolt and washer. Four required per enclosure.*



4900.MC *Stainless Steel Unistrut channel nut, bolt and pipe clamp, for pipes 1.5" (38mm) to 2" (50mm) OD. Four required per enclosure.*

Dimensions



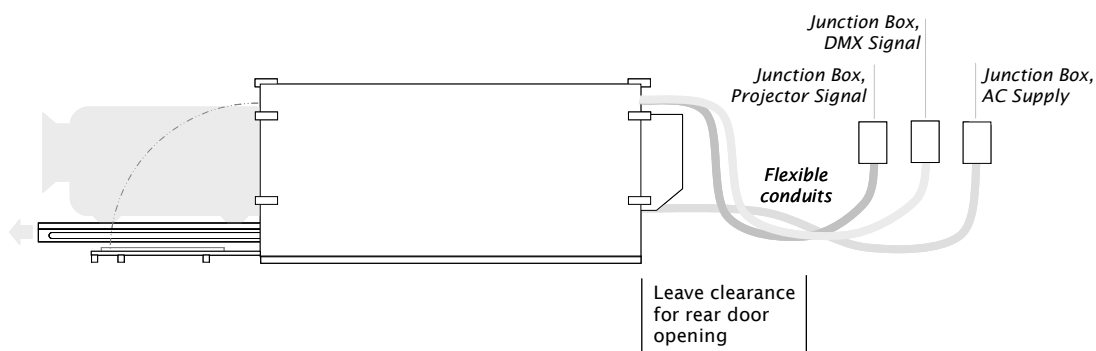
	8000	8200	8400
A	32" (81cm)	36" (91cm)	40" (102cm)
B	49" (117cm)	58" (147cm)	79" (201cm)
C	45" (115cm)	54" (137cm)	75" (191cm)
D	21.25" (52cm)	29.5" (75cm)	35" (89cm)
E	22" (56cm)	28" (68cm)	30" (76cm)
F	33" (84cm)	42" (107cm)	63" (160cm)
G	28.5" (67cm)	30" (76cm)	34" (86cm)
H	15" (38cm)	23" (58cm)	28" (71cm)

3 Wiring

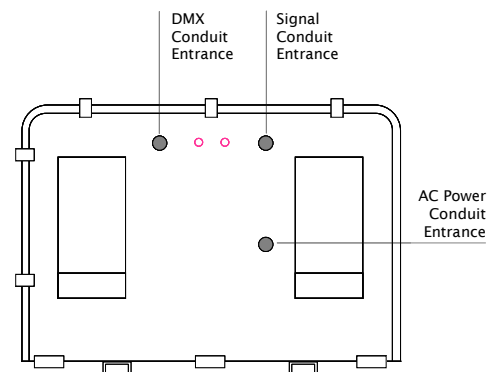
3.1 Electrical Preparation

⚡ **All electrical work must be carried out by a properly licensed electrician. Failure to observe this point will void the factory warranty for the Tempest Enclosure and possibly the luminaire/projector.**

- 1 Before starting work, switch off power to the branch circuit, carefully following lockout and tag-out procedures. Failure to do so could cause serious injury or death.
- 2 Two or three electrical junction boxes will be required within a short distance of the Cyclone enclosure for:
 - AC Supply wiring
 - Projector picture signal wiring
 - DMX Control wiring (optional)



Note the locations of the three conduit entry fittings on the rear panel

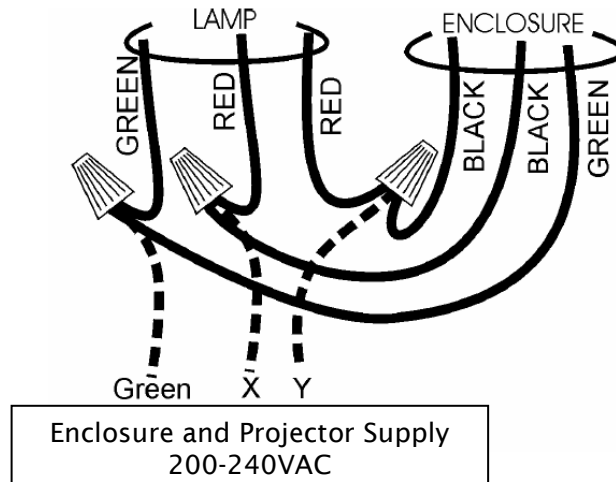


- 3 All junction boxes must be installed in accordance with local electrical codes and should be located near the permanent installation of the enclosure. Each junction box requires a length of 1/2" flexible weather-resistant conduit long enough to reach from junction box to the enclosure conduit fittings. Leave slack for positioning of enclosure, and enough space behind the enclosure to open the back door.
- 4 The AC supply must be 200-240VAC, and must be protected by a fuse or circuit breaker of a rating suitable for the projector, plus 1200 watts max for the enclosure fans and heater.

- 5 Connect the local junction box to the Cyclone enclosure using exterior grade flexible conduit. Pull suitably rated wires through the conduit to supply the Cyclone enclosure and connect to the pigtails supplied:
- 6 Alternatively, you may run separate AC feeds for the projector and the enclosure. Follow either single or double-feed wiring diagram, according to preference:

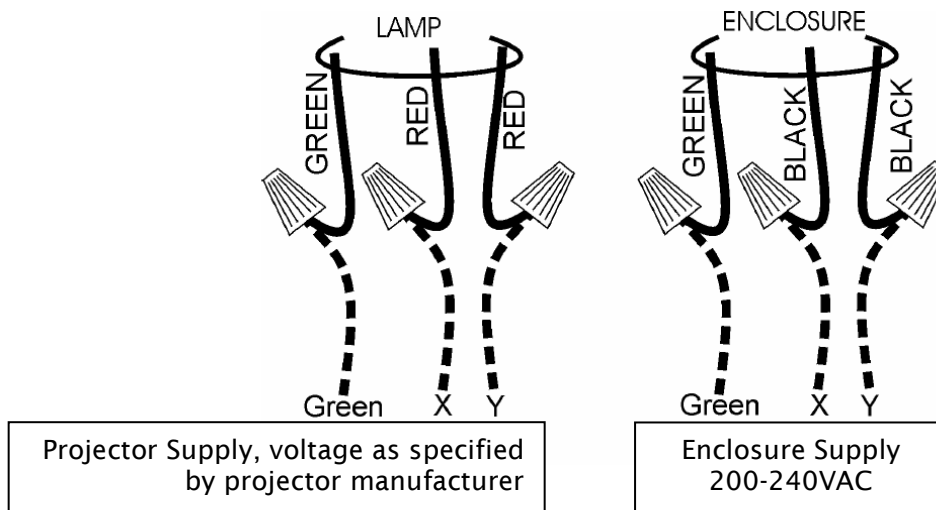
Single-line Supply - North America

Attach one leg (X) of the incoming supply line to one Black/Red pair. The other leg (Y) is connected to the remaining Black/Red pair. Make sure the supply line ground is connected to both green wires in the box.

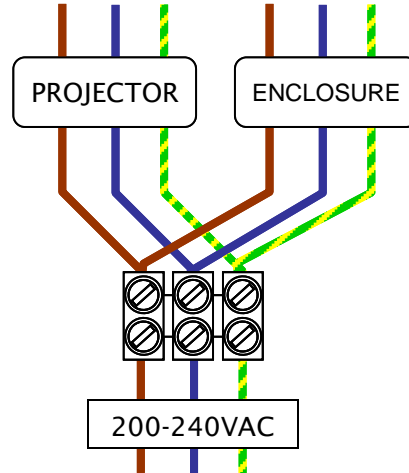


Double-line Supply - North America

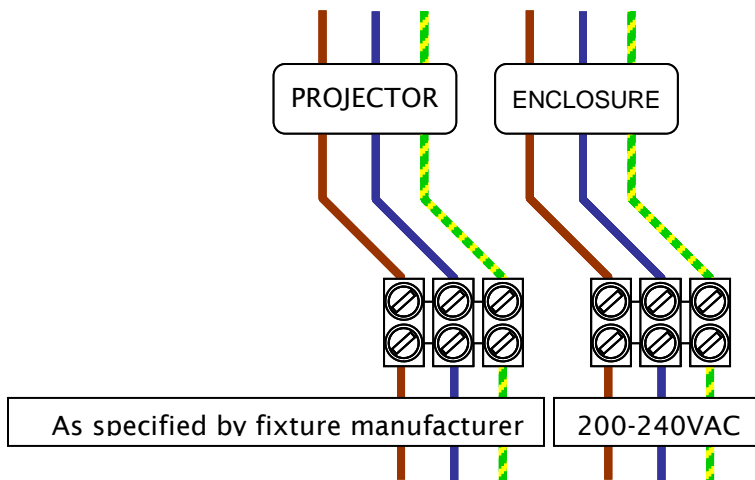
One supply circuit (projector supply, L1) will have each leg connected to one Red wire. The second supply circuit (enclosure supply, L2) will have each leg connected to one Black wire. Make sure ground is connected to both circuits.



Single-line Supply - International




Double-line Supply - International



- 7 Use the other conduit to run projector signal and control cables to the projector, as specified by the projector manufacturer.


4 *Mounting the Projector in the Cyclone Enclosure*

 For safety, this must be done by two people.

1. Open the front door and extend the projector tray to the full forwards position
2. Place the projector on the tray, and fix in place using the mounting kit provided – see separate projector mounting kit instructions.
3. Connect the projector to the internal enclosure power connector.
4. Connect projector signal cables
5. Tie down any cables so neither they nor any connectors will come into contact with the heater or fans.
6. Slide projector tray back into cyclone housing, making sure cables are clear of slides, fans and heater.
7. The system is now ready for checkout.

5 Activation and Checkout

Now the installation is complete, the time has come to activate the enclosure and make sure it is working properly.

 Be aware that once the enclosure has had power applied to it, the heater will get hot and the fans will start to turn. Make sure that your hands and any foreign objects are clear of both of these areas before applying power to the enclosure.

1. Clear enclosure and projectors of all debris.
2. If the enclosure has been connected with two power supply lines, turn on the supply for the projector – if not, skip to step 5. If connected properly, nothing should appear to turn on at this point. Because of the automatic projector shutdown feature when the climate control is not functioning, the projector should not come on. If the projectors or temperature control unit comes on, shut off the power and check your supply line wiring. If the supply line wiring is correct, contact technical support for assistance. If everything is working properly, shut off the power and continue to the next step.
3. If the enclosure has been connected with two power supply lines, turn on the supply for the enclosure. The temperature control unit should cycle through a few displays and then display the approximate outside ambient temperature (in °F) in red and “95” in green. Both fans will also begin to move at a slow pulse rate. The green indicator light on the back of the enclosure will mimic the fan behavior. If any of these things do not occur, shut off the power and check your connections. If your wiring is correct and the temperature control unit displays something other than what is mentioned above, write down what is on both displays and contact technical support. If all is operating correctly, switch on the projector supply.
4. If the enclosure has been connected with only one power supply line, switch on the supply. The temperature control unit should cycle through a few displays and then display the approximate outside ambient temperature (in °F) in red and “95” in green. The fans will also begin to move, most likely at a slow pulse rate (this is not a problem). The green indicator light on the back of the enclosure mimics the behavior of the fans. If any of these things do not occur, shut off the power and check your connections. If your wiring is correct and the temperature control unit displays something other than what is mentioned above, write down what is on both displays and contact technical support. If the temperature control behaves properly, but the fan do not move at all, shut off the power, make sure there are no obstructions in the fans. If all is operating correctly, turn on the projector power switch and supply (if not still on) and proceed to Step 6.
5. Set up the projector in accordance with the manufacturer’s instructions.
6. Slide the projector tray back into the enclosure, taking care that wiring is clear of slides, heater and fans. Lock projector tray in place.
7. close and latch the rear enclosure door.
8. Focus the projector, then close the front enclosure door.

9. The system is now ready for use.

Note

The enclosure can be secured with padlock at this point. Only qualified personnel should be accessing the enclosure.

5 Operation

While there are no specific operational actions required for normal use, the following points should be kept in mind.

- ① **Regardless of whether the projector is in use, power must be maintained to the enclosure at ALL TIMES. The Digital Enclosure Control system will work 24/7 to ensure that optimum temperature and humidity are maintained, preventing condensation, overheating and freezing. This is critical to attaining optimum projector lifetime.**
- ① The cooling fans will only turn when power is applied to the enclosure. Fans will stop turning when power is cut to the enclosure, but the heater may remain hot to the touch for up to one hour – be careful when opening the enclosure immediately following a power down.
- ① Unless the enclosure or projector/luminaire is undergoing routine maintenance, the enclosure should be closed and securely latched at all times.
- ① Only authorized personnel should open the enclosure (see maintenance warnings in the next chapter).
- ① If the safe operating temperature is exceeded, the over-temperature shutdown feature may engage and temporarily cut off power to the projector. Once the temperature reaches acceptable levels, power will be automatically restored. This is extremely unlikely to occur during hours of darkness when the projector is in use.
- ① The green indicator on the outside of the enclosure shows the status of the cooling fans. If the indicator is constantly on, then the fans are on full. If the indicator is flashing, then the fans are pulsing. If the indicator is off, then there is a fault with the cooling fan system and the projector should not be operated until this can be checked out.
- ① **Do not** routinely operate projector in full sun in hot weather. The enclosure has not been designed to protect the projector in this extreme condition.





6 Routine Maintenance

It is very important to perform routine maintenance on both the enclosure and the projector inside it. Failure to do so may reduce lifetime for both the enclosure and the projector.

Note

Maintenance schedules depend on location and environment. The intervals given here are general minimum guidelines. It is up to the user to judge whether maintenance should be carried out more frequently. We recommend doing these tasks no less often than mentioned here.

Safety

-  As the enclosure is a powered unit with moving parts, it is necessary to keep safety in mind while performing routine maintenance. Although maintenance can be performed while the enclosure is powered, it is safer to carry it out with the power disconnected with proper lockout and tag out procedures followed.
-  Be aware that once the enclosure has had power applied to it, the fans will start to turn. Make sure that your hands are clear of the fans before applying power to the enclosure.
-  Only authorized personnel should perform maintenance on the enclosure or luminaire
-  Do not service the unit in the rain or other adverse weather conditions (snow, sleet, high winds, etc.).

Inspection Checklist: - Every Three (3) Months

- Glass should be clean and free of cracks
- Enclosure should be free of debris both inside and out
- Bolts should be tight
- All safety cable should be in good condition
- Door seals should be in good condition. Check seals inside and out for gaps.
- Fans should be functioning and not making excessive noise
- Fan filters should be clean
- Drainage holes free of obstruction

Air Filters - Every Three (3) Months

The air filter from the intake vent on rear of enclosure (left side) should be removed and cleaned on a regular basis. To remove filters, pull them directly out of their groove. The filters can be cleaned by running water from a hose and do not require any special solution.

To reinstall, push filter back into Velcro on the bottom of the intake vent. Filter should be flush with bottom of vent.

Case - As Needed

The outside of the case should be cleaned as needed. The case should be cleaned with a wet cloth and mild detergent (if necessary). Do not use a direct spray from a hose to clean the case.

Window – As Needed

Clean using a proprietary glass cleaning solution or a mild detergent, and wipe dry. Use only soft, lint-free cloths for glass cleaning. Never use an abrasive cleaner.

Projector

Review the manufacturer's instructions for proper maintenance of your luminaire/projector. Remember, the enclosure simply protects the equipment inside it and is not a substitute for regular maintenance.

7 Troubleshooting

This is a guide to the general symptoms, problems, and solutions that may occur during the usage of your enclosure. However, it is important to remember that problems may occur within the luminaire itself and these must also be considered.

Projector does not have power.

Check power supply wiring and voltage.

One or more fans are not spinning

Fans may be obstructed. Shut off power to enclosure and check for obstructions. Turn power back on to see if fans will start spinning. If fans do not turn and display on temperature controller is lit, contact technical support. If fans do not turn display is not lit, then enclosure is not receiving power. Turn off all power and check wiring. If the wiring is correct, contact technical support.

Fan cords may have become disconnected. Check connections between fan and cord. Make sure that the ribbed side of the cable is on the positive side of the connection (the fans are DC powered).

Projector does not have power.

Check projector power switch. (Note: the following actions should be preformed by a licensed electrician) If switch is on, check wiring (including metering supply voltages, enclosure must receive 200-240VAC to operate properly).

If A1 indicator on temperature controller is lit, meter power in receptacle. If no power is present at the receptacle, the over-temperature relay or control system may be faulty: contact technical support. If A1 indicator on temperature controller is not lit, then an over-temperature or controller error (check for any message flashing on the temperature control) has occurred.

In case of over-temperature, the enclosure shuts down power to the projector, for its protection. Projector power will be restored when temperature drops to an acceptable level. It is possible that the air intake or exhaust has become clogged, leading to higher temperatures inside the enclosure. Make sure that these areas are clear, the filters are clean, and the fans are working properly.

Projector turns on and off repeatedly over short span of time.

Check that vent areas and airways are clear. If so, ambient temperature may be too high (see over-temperature note above) or projector may have internal problem.

Temperature control is flashing:

OvEr	Too much electrical noise present.
SbEr, CSEr	Contact technical support.

Excessive water in enclosure.

Weep (drain) holes may be clogged. Clear them.

Glass seal leak. Repair with silicone sealant.

Door gaskets leak caused by separation. Silicon piece back into place or replace section.

8 *Sample Specification*

Unit shall be a Tempest projector enclosure catalog number 8000-__-__. The housing shall be constructed from aluminum and stainless steel. Further, the unit shall possess filtered forced air ventilation in combination with heater and controlled by a microprocessor with a temperature display. Unit shall be ETL listed to U.L. standard 508 for wet locations and be a NEMA type 3R. The unit shall have above ground connection ports, compression latches with padlock rings, and may be secured to its mounting via stainless steel eye bolt, making it highly theft resistant. Unit shall provide a power cutoff to fixture in case of high temperature inside enclosure. Units shall control cool-down rate of projector by use of heater. Unit shall have a projection window with optically clear safety glass. The enclosure shall be identified as The Cyclone Enclosure manufactured by Tempest Lighting, Inc., of North Hollywood, California, USA.

9 Limited Warranty

What is covered. Exclusions.

Unless otherwise stated, your product is covered by a one (1) year parts and labor limited warranty. Factory-painted product is not guaranteed against scratches. It is the Owner's responsibility to furnish receipts or invoices for verification of purchase date, and dealer or distributor. If purchase date cannot be provided, date of manufacture will be used to determine start of warranty period. Unless otherwise specifically stated in writing, all warranty work is carried out at the Tempest Lighting factory. In the event that the Owner purchases any optionally available on-site check-out or turn-on services, Owner agrees to provide facilities to perform such services at ground level. Tempest Lighting does not in any way offer any warranty for the luminaire.

Owner Responsibility for Installation.

Tempest Lighting makes no recommendations for mounting any Tempest Lighting product. It is the sole responsibility of the Owner to perform any necessary structural, electrical, environmental or other appropriate analysis prior to installing any Tempest Lighting product.

Returning an Item Under Warranty for Repair.

It is necessary to obtain a Return Material Authorization number (RMA#) from your dealer or point of purchase BEFORE any units are returned for repair. The manufacturer will make the final determination as to whether or not the unit is covered by warranty.

Any Product unit or parts returned to Tempest Lighting, Inc., must be packaged in a suitable manner to ensure the protection of such Product unit or parts, and such package shall be clearly and prominently marked to indicate that the package contains returned Product units or parts and with a Return Material Authorization (RMA#) number. Accompany all returned Product units or parts with a written explanation of the problem or malfunction.

NOTE: Freight Damage Claims are invalid for fixtures shipped in non-factory boxes and packing materials. These materials can be supplied if requested, at additional cost. It is recommended that all packaging material be retained for possible re-use.

Freight.

All shipping charges must be prepaid by the Owner. Items under warranty shall have return shipping paid by the manufacturer only in the Continental United States. Under no circumstances will freight collect shipments be accepted. Prepaid return shipping does not include expediting such as airfreight. Airfreight will ship customer collect.

REPAIR OR REPLACEMENT AS PROVIDED FOR UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. TEMPEST LIGHTING, INC. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO ANY PRODUCT, AND TEMPEST LIGHTING SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TEMPEST LIGHTING SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGE, INCLUDING LOST PROFITS, SUSTAINED OR INCURRED IN CONNECTION WITH ANY PRODUCT OR CAUSED BY PRODUCT DEFECTS OR THE PARTIAL OR TOTAL FAILURE OF ANY PRODUCT REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, AND WHETHER OR NOT SUCH DAMAGES WERE FORESEEN OF UNFORESEEN.

Warranty is void if the product is misused, damage, modified in any way, or where unauthorized repairs or parts have been employed. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Tempest Product Support.

Step 1: First contact your local Dealer for support. Your dealer is best placed to respond quickly to your needs.

Step 2: If your dealer is unable to answer your questions please contact our Exclusive Sales Representative Office:

Forman & Associates, Inc
5401 Bevis Avenue
Sherman Oaks, CA 91411 USA

Tel +1 818 787 4900

Fax +1 818 787 4994

info@tempestlighting.com

Visit our web site for current information and specifications:

www.tempestlighting.com

10 Registration

Filling out the registration form on the next page and sending it to the Tempest Lighting factory within 30 days of installation entitles you to the warranty cover specified in this manual. It also enables us to notify you in case of important news or post-sale information regarding the Cyclone Lighting Enclosure.

Cyclone Enclosure Registration Form

Detach and mail/fax to:

Tempest Lighting, Inc., 13110 Saticoy St., N Hollywood, CA 91605

Fax # +1 818 787 4994

If a Tempest Representative has not inspected the installation, please send photos showing installation.

Model Number:

Serial Number:

Latch Key Number:

Dealer/Sold By

Name:

Location:

Date Purchased:

Contractor/Installed By

Name:

Date Installed:

Location Installed:

Company/Organization

Name:

Street Address:
.....

City, State, ZIP, Country:
.....

Phone:

Fax:

Contact Information

Name:

Phone: Extension:

Fax:

E-mail: