



Cyclone is the world's most popular outdoor enclosure for permanent installation of large format video projectors in any climate, for video mapping, outdoor attractions, advertising and outdoor movies.

Cyclone models are tailored specifically for each projector type. Each Cyclone model has been thoroughly tested and approved with its designated projector before being released for production.

Cyclone comes with all the features you need:

- · Lightweight aluminum welded construction
- · Powerful AC fan
- Salt fog filtering, with positive pressure option
- Available RDM, TCP/IP or webbased monitoring options
- NOW: >98% visible light transmission, using tempered, AR-coated glass

Standard Cyclones come with side doors and the option of projector slide to left or right. Versions with front or back slide are available to special order.

All Cyclone models feature Tempest's patented Digital Enclosure Control system (DEC4TM), now available with optional remote monitoring over your TCP/IP network.

Tempesst's patented DEC4 controller will keep your projector warm when it's cold, cool when it's hot, and will never allow deadly condensation to form.

And all Cyclone models feature Tempest's hydrophobic inlet filters, blocking salt, oil and other pollutants from getting near your projector.

Portrait

Cyclone portrait enclosures are available to order for all applicable projectors.

Ultra-Short-Throw

Cyclone is ready for the UST revolution — now you don't need to own the plot across the street to project on the front of your building! See the next page for more about UST configurations.

Cyclovator

Cyclovator allows any Cyclone enclosure to be tilted up to 60 degrees up or down, and restored to horizontal for safe projector service access.



Tip: Specify left (shown here) or right slide when ordering



Cyclone 55.310P Portrait enclosure.

Tip: Cyclone's Portrait mounts vary by projector type, and generally allow for ± 5' tilt adjustment to compensate for limited horizontal lens shift..

Tip: Most of the shots in this brochure show Tempest standard light bronze powder coat finish, but you can specify white, black, or any RAL color when ordering.

The Cyclovator 2 under this Cyclone 55.210 can tilt its projector up to 60° either up or down, with a repeatable stop and a positive lock for accurate show positioning.

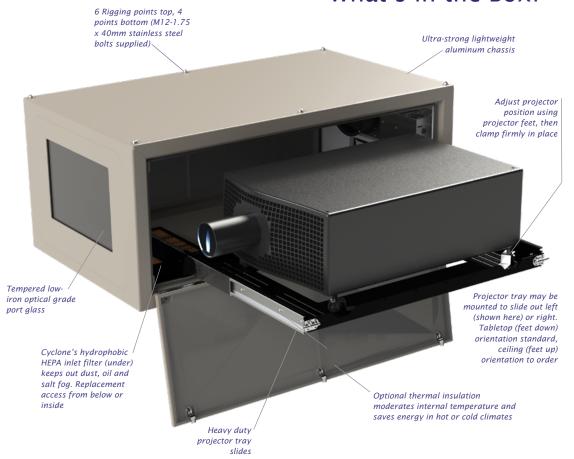
Tip: Use Cyclovator 2 feet-up to hang Cyclones at any angle from a truss or structure



Tip: Specify the inlet cowl shown here if the tilt angle will exceed 10° up or down.



What's in the Box?







Ultra Short Throw Lenses...

is getting excited about their amazing potential for mapping, informational signs and advertising. UST outdoor enclosures allow you to paint the outside of your building without having to own the block across the street!

Now that UST lenses are readily

available for large format projectors, the creative community

There are now a bewildering number of different UST configurations on the market, and it's critically important that we understand precisely which one you are planning to use. Each type will have different beam geometry, and these can be very challenging to accomodate, so most UST enclosures are in fact custom designs.

Cyclone UST enclosures may be configured to mount above the image (projecting down) or below it (projecting up).

The lenses may be fixed but the projector mount allows for adjustment of pan, tilt and roll when you get to the job site.

Some 90-degree UST lenses can

be mounted in different orientations (see right panel). This one shows a Cyclone 55.310.

U90R enclosure, with a Chris-

tie Crimson, with the UST lens

pointing right.



Shown here feet-up, projecting down, but may also be configured feet-down, projecting up.



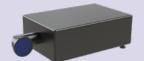
This can be confusing. Please specify the UST lens configuration when ordering:



Perisope Style A



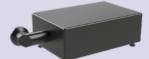
Periscope Style B



Right-angle Left



Right-angle Down



Right-angle Right



Right-angle Up

We will also need to know:

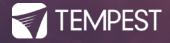
Projector and lens model #s

Projector - feet up or down?

Projector - Landscape or Portrait?



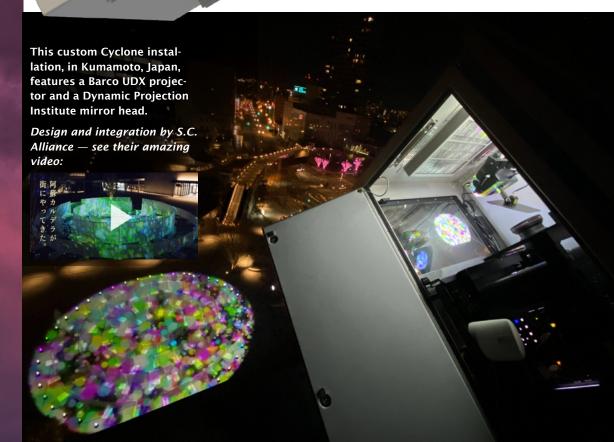
Cyclone 55.310.U90R with Christie Crimson and rightangle UST Lens.





...and Moving Mirrors!







Cyclone Outdoor

Outdoor Projector Enclosures

Rigging Options

All Cyclones come with six M12 threaded sockets on the top surface, and four on the bottom. So you can bolt the enclosure directly to your structure, or use them to attach these Tempest rigging accessories.

Stainles steel bolts are provided for attachment to any suitable support structure.

Tempest recommends only the use of stainless steel hardware for installing enclosures outdoors.

Unistrut Kit

Easy attachment to any structure using these two Unistrut rails. Use standard Unistrut hardware to attach to your structure, without worrying about precise hole locations.

Unistruts may be mounted top (shown here) or bottom.

Note: A Unistrut Kit is required for use with Cyclovator 2.



55.UR.310 Unistrut Kit.
Unistrut rails may be
mounted top or bottom.

Two Cyclone 55.310.L with 51.SK Stacking Kit. The stacking kit gives the enclosures the required 3" [75] airgap, and assembles easily with clevis pins



Stacking Kit

Stack two or more Cyclone enclosures of the same type using this stacking kit.

Male and female parts attach to the threaded corner holes, and are simply joined together using a stainless steel clevis pin.

Maximum two enclosures stacked if hung, up to three with ground support.

See also the swivel stacking kit on the next page.

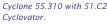
Cycolvator 2

Our fabled Cyclovator tucks snugly under the center of gravity of the enclosure.

Use Cyclovator on the ground to cover tall buildings, or on a rooftop to project to ground level. Either way, Cyclovator allows you to project up to about 60° off horizontal, and then bring the projector safely back to horizontal for service access.

You can even bolt this Cyclovator to a truss or other structure and use it to hang any Cyclone enclosure at any angle.

In every case, Cyclovator has a positive index ring that you set to come back to your show position with absolute repeatability, time after time...







Cyclone **Projector** Enclosures

Rigging Options

Angle Mount

A simple fixed mounting Kit for one or two Cyclone enclosures, with a range 10-45° up (shown here) or down — simply mount with the enclosure(s) facing the other way.

Stacking two enclosures is not recommended with a tilt angle >30°.

55.AM2 Cyclone 210-305

55.AM3 Cyclone 310, 314, 324

55.AM4 Cyclone 320, 525

To stack two enclosures, order the appropriate Angle Mount Kit, plus one stacking Kit.

Sun Shade

This aluminum panel mounts easily on the top of any Cyclone enclosure to provide extra daytime protection in hot, sunny climates. The cover not only deflects sunlight, but also provides a 75mm (3in) air gap between the shade and the enclosure top, promoting convective air movement. Use in conjunction with 55.TI thermal insulation in sunny areas with daytime temperatures frequently above 35 °C (95 °F).

See also Thermal Insulation Kit, next page.

Two Cyclone 55.210 Landscape enclosures with a 55.AM2 Angle Mount kit and a 51 SK Stacking Kit

attaches easily to rigging points. Note that the xxx matches

Swivel Stacking Kit

Stack two Cyclone enclosures (must be the same model), and angle them up to 40 degrees apart — handy for short-throw edge blending jobs.

Stainless steel stacking kits attach to M12 rigging points, and locking bolts are provided to secure rotation angle when aligned.

Swivel Stacking kit part number must match Cyclone enclosure — eg 55.SS.310 is the Swiveel Stacking kit for two Cyclone 55.310 enclosures shown here.

Custom Rigging Options

Don't see what you need? We do a lot of custom designs and we'll be happy to work with you to find the best solution for your project.

55.SH.xxx Sun Shade

the Cyclone's top

the enclosure

part number, eg

55.SH.310 for Cvclone 55.310

shown here.



What to do when it's HOT

Don't panic!

Cyclone enclosures have been in use for years in some very warm places — think Singapore, Dubai, Las Vegas. In many cases our standard enclosures will protect your equipment without problems.

Outdoor projection, by definition, is used at night. So you need to think about daytime and showtime temperatures quite separately:

Daytime — Insulation

In hot locations (anywhere with daytime temperature regularly exceeding 35°C), we strongly recommend specifying the Cyclone Thermal Insulation option (55.Tl.xxx). This is a factory-fitted thermal insulation lining to the enclosure that effectively moderates daytime temperatures, reducing stress on your equipment and prolonging fan life.

Daytime — Hot Sun

If your enclosures will be regularly exposed to hot sun, the Cyclone Sun Shade (55.SH.xxx) is a simple, low-profile aluminum cover, that protects the enclosure from the midday sun and creates a 75mm (3in) air gap above the enclosure body. This protects the enclosure and its contents from the worst of the sun anywhere in the tropics or in desert conditions.

Showtime — Cooling

Cyclone enclosures generally deliver cooling air to the projector at 1-2°C (3-4°F) above the outside ambient temperature, when the projector is running. So if your projector is good for a couple of degrees above the likely ambient at show time, Cyclone is for you.

If the expected ambient is higher than your projector's comfort level (and see the sidebar to the right here), then you should take a look at our Oasis system, with integrated active cooling.

Tempest Oasis

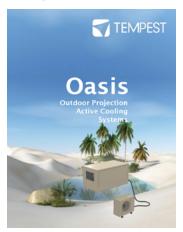
Outdoor Projection Active Cooling Systems

In locations where show time ambient temperatures exceed your projectors' comfort level, you need to look at Oasis.

Oasis uses invertor heat pump technology to maintain a constant comfortable temperature for your projector, in any ambient between -15 and 50°C (5-122°F).

Oasis has another important benefit for RGB laser projectors: with a constant operating temperature, Oasis removes the risk of color shift as the laser light engines react differently to changes in temperature.

Find out more about Oasis by clicking on the link below:



Tip:

Read the Small Print

The conversion from lamps to laser light sources is now complete, we may never build another lampbased enclosure, and that's generally a Good Thing.

But you need to study those laser projector specs very carefully for example:

Environmental

The spec says 45°C (113°F) so we're good, right? Not necessarily. Read on and you may well find that light output is limited above, say, a 25°C (77°F) ambient. This might not be a big deal if it only happens a few nights of the year in your location, but if it's hot where you are, then it might...

Altitude

Most outdoor jobs are at or not far from sea level, but what if you're in the mountains? Check the effect of altitude on light output and environmental specs...

> Doing your homework at the planning stage can save a lot of time and trouble on the job site...





Climate and Filter Protection

55.xxx.TI Thermal Insulation Kit

Cyclone enclosures may be used safely in climates with temperatures ranging from 0-40°C. In hot climates where the enclosures may be exposed to direct sun during the day, and in cold areas where the temperature may drop below freezing, we offer a factory installed Thermal Insulation kit. With the TI kit Cyclone may be used in temperatures down to -20°C, and it will also thrive in direct sun with daytime temperatures above 50°C

See also Sun Shade on previous page.

Positive Pressure and Salt Air

We do a lot of cruise ship jobs, as well as beach resorts and attractions where salt air can be a real problem. Now all Tempest outdoor enclosures can be supplied with a Constant Positive Pressure setting that runs the enclosure fan(s) all the time at low power, maintaining just enough positive pressure to prevent salt or other pollutants

sneaking in the back door when the projector is not running.

Specify option 55.PP.

55.IC.xx Inlet Cowl

Use this cowl to keep rain out of the inlet filter if the Cyclone enclosure is angled more than 20° up or down.

55.DFB.xx Desert Filter Baffle

In desert areas severe windblown sand may damage Cyclone's inlet filter, allowing sand and dust ingress in sandstorm conditions. The desert baffle slows down these particles, preventing filter abrasion.



More Options

55.WW Windshield Wiper Kit

This stainless steel marine wiper keeps your port glass clean in rain or light snow. It's self-parking, so there's no chance the blade will stop in front of the lens.

Control over your network using TEMPS (requires ethernet comms option).



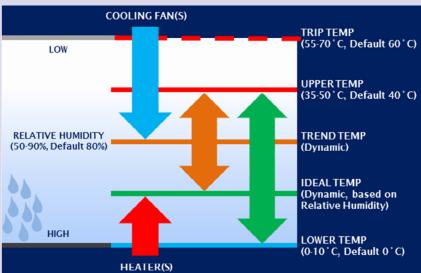
Goldilocks™

How do we keep projectors from roasting when it's 50°C and there's no shade?

And prevent condensation from destroying your projector overnight?

Tempest's unique Goldilocks™
Operating System (patents pending) brings enclosure control to a new level.

Goldilocks keeps
the air temperature
inside your enclosure just right,
removing heat from the projector when the lamp is on or
when the enclosure is heated by
the sun. We're changing the air
every few seconds.



Goldilocks uses a heater to maintain a minimum temperature in cold climates.

And Goldilocks tracks temperature and humidity 24/7, keeping relative humidity inside your enclosure just right by using heaters to raise the air temperature when needed, adapting constantly to prevent deadly condensation.



Tempest System Manager

System Manager

Tempest System Manager is a Windows app running on a local PC connected to your enclosures over a local area network.

TSM discovers any Tempest enclosures present on the network at initialization, and monitors system attributes in real time, including lamp, fan and heater status, temperature, relative humidity and more.

TSM may also be used to upload firmware updates to enclosure controllers over the network, without having to visit each enclosure

The TSM license includes 12 months unlimited user support from Tempest electronics partner JESE, and continuing support is available for a modest annual fee.

Fan % Cyclone 310 Left 1 DEC4 Controller Cyclone 310 Left 2 231V 12.2A 46.0% 23.8°C 0.0% 100.09 DEC4 Controller Cyclone 310 Left 3 Override 231V 0.0A 49.4% 22.6°C 0.0% 0.0% Tripped DEC4 Controller DEC4 Controller Cyclone 310 Left 5 231V 12.2A 46.1% 23.4°C 0.0% 100.0% 23.5°C 0.0% Cyclone 310 Left 6 Lamp on DEC4 Controller Cyclone 310 Right 1 231V 12.2A 46.4% 23.8°C 0.0% 100.0% DEC4 Controller Cyclone 310 Right 2 Lamp on 231V 12.2A 46.3% 23.5°C 0.0% 100.0% 23.2°C ne 310 Right 3 231V 0.0% Lamp on ne 310 Right 4 231V 12.2A 46.1% 23.1°C 0.0% 100.0% 11 DEC4 C V Desc 12 DEC4 C V Labe 13 DEC4 C V Statu 14 DEC4 C V Curre ne 310 Right 5 Lamp on 231V 12.2A 46.0% 23.7°C 0.0% 100.0% Lamp on ne 310 Right 6 23.4°C ard 100 UST 1 ard 100 UST 2 231V 231V 51.3% 51.8% 22.1°C 22.0°C 0.0% 0.0% Standby 0.2A Standby 15 DEC4 C V ard 100 UST 3 231V 51.4% 0.0% 0.0% ard 100 UST 4 Standby 231V 0.2A 51.3% 22.3°C 0.0% 0.0% DEC4 C ard 100 UST 5 0.2A 21.8°C 0.0% 231V 51.3% 0.0% Standby 18 DEC4 C ✓ Htr % Standby ard 100 UST 6 231V 0.2A 51.6% 22.1°C 0.0% 0.0% 19 DEC4 C ard 100 UST 7 Standby 231V 0.2A 51.5% 21.4°C 0.0% 0.0% 20 DEC4 Controller Blizzzard 100 UST 8 术

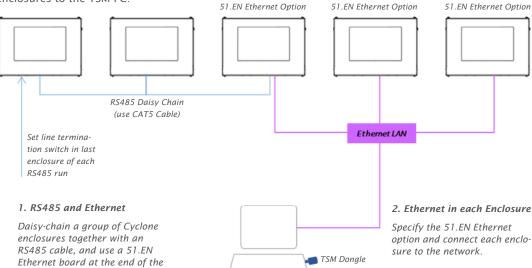
TSM Model Numbers

51.TSM.10 Up to 10 enclosures 51.TSM.25 Up to 25 enclosures 51.TSM.50 Over 25 enclosures

Monitoring Connections

There are two ways to connect enclosures to the TSM PC:

line to connect to the network.



Local PC

TEMP Protocol



Tempest also publishes a simple protocol for use by integrators wishing to monitor enclosures over an existing control network.

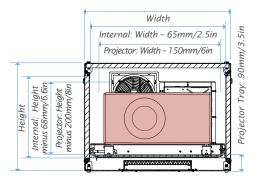
Connection options are the same as for System Manager.

Download the TEMP Developer Guide <u>here</u>:



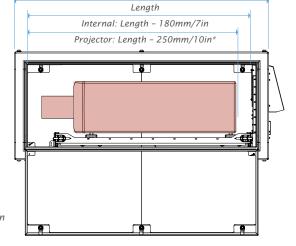
Enclosure Specification

Construction		Specification					
Materials	Aluminum, Stainless Steel						
Hardware/fasteners	Stainless Steel						
RoHS	Compliant						
Port Glass	Tempered Starphire glass, AR coated, >98% transmission						
Dimensions	See product brochure listing,						
Weight	See product brochure listing						
Paint Finish - standard	Polyester powder coat						
Paint Finish - optional, salt air	Zinc-rich primer, polyester po	wder coat					
Recommended max Projector/Lens:	Recommended *	Absolute					
Length - Enclosure Length minus:	250mm/10in	180mm/7.1in					
Width - Enclosure Width minus:	150mm/6in	65mm/2.5in					
Height – Enclosure Height minus:	200mm/8in	168mm/6.6in					
	* See illustration below						
Environmental							
Temperature (standby)	-25°C to 50°C (-13°F to 122°F)						
Temperature (operating)	-20°C to 40°C (-4°F to 104°F)						
Relative Humidity	0-95%						
Standards - North America	UL50						
NEMA Rating	NEMA 3R (4X with ActiveCool)						
Standards - International	IEC/EN 60529:1991/AC:2016-12						
IP Rating	IP 54 (IP 66 with ActiveCool)						
IK Rating	IK08, to IEC/EN 62262 (2002)						
Max Noise Level (@ 1m)	59dBA						
Electrical							
Standards - North America	UL508, UL50						
Standards - International	Low Voltage Directive 2014/3	5/EU					
Standards - International	EN 60065 : 2014/AC:2016						
Standards - China	Certified CCC Exempt						
Voltage	200-250VAC, 50-60Hz						
Projector power	See product Brochure listing						
Enclosure power (max)	1,100W **						
	** Includes 900W heater, which corrunning. Allow for projector power						
EMC	EN 61000-6-3:2007+A1:2011						
	EN61000-6-1:2007						
	EN55015:2019/A11:2020						



Projector Size Guide

* To prevent overheating, allow 75mm/3in airflow clearance behind projector.







Cyclone Ordering Guide

Cyclone Pro				Encl	sure							Ship	ping					
Model Or	rientation ²	Typical Projectors ³	L (cm)	N (cm)	H (cm)	Kg	L (in)	W (in)	H (in)	Lb	L (cm)	W (cm)	H (cm)	Kg	L (in)	W (in)	H (in)	Lb
55.200.L La	ındscape	Epson EB-PU 22xx	86	86	46	46	34	34	18	101	107	107	71	82	42	42	28	181
55.200.P Po	ortrait		86	46	91	46	34	18	36	101	107	66	117	82	42	26	46	181
55.202.L La	andscape	Panasonic PT-RQ25K,	112	76	46	55	44	30	18	122	132	97	71	92	52	38	28	202
55.202.P Po	ortrait	DPI M-Vision 23K	112	46	76	55	44	18	30	122	132	66	102	92	52	26	40	202
55.204.L La	andscape	Christie M4K-25	117	76	51	58	46	30	20	127	137	97	76	94	54	38	30	207
55.204.P Po	ortrait		117	51	76	58	46	20	30	127	137	71	102	94	54	28	40	207
55.210.L La	ındscape	Panasonic PT-RZ21K,	127	86	51	78	50	34	20	171	147	107	76	114	58	42	30	251
55.210.P Po	ortrait	Barco G100	127	56	86	78	50	22	34	171	147	76	112	114	58	30	44	251
55.212.L La	ındscape	Barco UDM/Njord	122	81	56	76	48	32	22	168	142	102	81	113	56	40	32	248
55.212.P Po	ortrait	20.100 02.11, 1.90.0.	122	61	81	76	48	24	32	168	142	81	107	113	56	32	42	248
55.250.L La	ındscape	Epson L-30000	127	94	51	89	50	37	20	196	147	114	76	125	58	45	30	276
55.250.P Po	ortrait	_pso 50000	127	51	102	89	50	20	40	196	147	71	127	125	58	28	50	276
55.305.L La	ındscape	Panasonic PT-RQ35K,	132	81	61	87	52	32	24	192	152	102	86	135	60	40	34	297
55.305.P Po	ortrait	RZ34K, Barco UDM	132	61	81	87	52	24	32	192	152	81	107	135	60	32	42	297
55.310.L La	ındscape	Barco UDX 40K	137	86	61	98	54	34	24	217	157	107	86	146	62	42	34	322
55.310.P Po	ortrait	Bureo OBA TOR	137	61	86	98	54	24	34	217	157	81	112	146	62	32	44	322
55.314.L La	ındscape	Christie Griffyn 32K	147	86	61	103	58	34	24	226	168	107	86	150	66	42	34	331
55.314.P Po	ortrait	C 150.10 C. 1777.1. 52.10	147	61	86	103	58	24	34	226	168	81	112	150	66	32	44	331
55.322.L La	ındscape	DPI Titan Laser 37K	142	94	61	122	56	37	24	269	163	114	86	170	64	45	34	374
55.322.P Po	ortrait	DITTICUIT Edisor STR	142	61	102	122	56	24	40	269	163	81	127	170	64	32	50	374
55.514.L La	ındscape	Christie Griffyn 50K	147	94	61	118	58	37	24	260	168	114	86	166	66	45	34	365
55.514.P Po	ortrait	Christic Griffyh Sok	147	61	97	118	58	24	38	260	168	81	122	166	66	32	48	365
55.522.L La	ındscape	DPI Insight 8K 37K	163	94	71	173	64	37	28	381	183	114	97	230	72	45	38	506
55.522.P Po	ortrait	2	163	71	112	173	64	28	44	381	183	91	137	230	72	36	54	506
55.525.L La	ındscape	Panasonic PT-RQ50K	163	94	74	137	64	37	29	302	183	112	91	194	72	44	36	427
55.525.P Po	ortrait	Tanasome T Resort	163	66	91	137	64	26	36	302	183	86	117	194	72	34	46	427

¹ Due to continuous product development, weights and dimensions are subject to change. Check with Tempest before construction work.

All Cyclone products are built to order. Please contact Tempest for lead times.

All sales are subject to Tempest Lighting, Inc. Standard Terms and Conditions of Sale, available for download at www.tempest.biz.

All Schedule B Export Code: 9405.99.0000



Custom Colors

Most enclosures in this brochure are shown in our popular standard light bronze finish.

White, Black or any RAL color are available to special order.

See the color section in the Cyclone Configurator on the next page.

Available Options

55.UR.xxx	Unistrut Rail Kit (Use the 3-digit enclosure model #, eg 55.UR.200	55.IC.15 55.IC.22	Cyclone Inlet Cowl for Cyclone 55.2-3xx Cyclone Inlet Cowl for Cyclone 55.400 and up
51.SK	Stacking Kit	55.DFB.15	Cyclone Desert Baffle for Cyclone 55.2-3xx
51.SS.xxxx	Swivel Stacking Kit (xxx = Cyclone model #)		,
55.C2	Cyclovator 2 (requires 55.UR.xxx)	51.EN	Ethernet Bridge (for system monitoring)
55.AM2	Angle Mount Kit, Cyclone 210-305	51.TSM.xx	Tempest System Manager
55.AM3	Angle Mount Kit, Cyclone 310, 314, 324	51.HF.15	Spare Inlet Filter Cyclone 55.2-3xx
55.AM4	Angle Mount Kit, Cyclone 320, 525	51.HF.22	Spare Inlet Filter Cyclone 55.400 and up
55.Tl.xxxx	Thermal Insulation Kit (factory fitted)	55.PP	Positive Pressure Option
55.SH.xxxx	Sun Shade (xxx = Cyclone model #)	55.WW	Cyclone Windshield Wiper Kit

For custom options please consult factory

² Landscape and Portrait versions shown here. UST versions are custom or semi-custom. Please consult Tempest for details

 $^{^{\}scriptscriptstyle 3}$ For projectors not shown here, please contact Tempest — we will be happy to accomodate any projector type



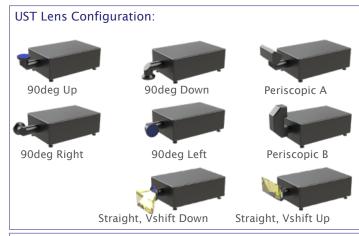
Cyclone Configurator

Please complete this form for each Cyclone type required and email to us at info@tempest.biz

Name *				
Company *				
Email *				
Phone				
Project Name & Location *				
Projector & Lens Make/Model #	Project	or: *	Lens: *	
Cyclone Model *	55.		Quanti	ity
Destination Country *				
Expected Install Date *				
Enclosure Type *	Landsc	ape Port	rait	UST
Projector Slide *				
Projector Mount *		ape/UST: Feet :: Feet Left	Down Feet F	
Supply Voltage *				
Options	1			
Thermal Insulation	Qty	No		
Inlet Cowl	Qty	No		
Desert Filter Baffle	Qty	No		
Positive Pressure	Qty	No		
Sun Shade	Qty	No		
Cyclovator	Qty	No		
Angle Mount Kit	Qty	No		
Stacking Kit	Qty	No		
Swivel Stacking Kit	Qty	No		
Unistrut Kit	Qty	Mounting		No
Ethernet Comms	Qty	Туре		No
Windshield Wiper	Qty	No		
Williasiliela Wipel	Qty	110		

Projector Power Outlet (all types include IEC 60320 C13 Aux Power):	
Select Type:	
Custom:	

Color, standard	Light Bronze	Black	White
Color, custom	Custom, RAL #		
Gloss levels higher than 30% may show up weld marks. Tempest accepts no	Gloss Level	%	
responsibility in this event.	Salt Fog Primer:	Yes I	No



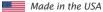
Custom Requests:

Factory Use Only:	SO #:		Date:	
Electrical:	IEC	NEMA	Wiring p:	
Test:	Function	Proj	ector	
Hardware Kit:				

User manuals and CAD drawings at www.tempest.biz







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 $In the interest of continuous \ product \ improvement, \ specifications \ are \ subject \ to \ change \ without \ notice$