

# Enclosure Cooling

## You need to cool down

Heat inside an enclosure can decrease the life expectancy of controlling units such as your PLC, HMI, AC drives and other items. Excessive heat can cause nuisance faults from your electrical and electronic components: for example, overloads tripping unexpectedly. Heat will also change the expected performance of circuit breakers and fuses, which can cause whole systems to shut down unexpectedly. So, if you have any electronic equipment or other heat sensitive devices, you may need cooling.

What causes all that heat?

There are basically two sources that can cause the enclosure's internal temperature to rise above the ratings of the control equipment.

### Internal Sources

The same items that can be damaged by heat may also be the source of the heat. These include items such as:

- Power supplies Servos
- AC Drives/inverters Soft starters
- Transformers PLC systems
- Communication products HMI systems
- Battery back-up systems

### External Sources

Other sources of heat that can cause the internal temperature of your enclosure to rise above a desired level involve the external environment. These include items such as:

- Industrial ovens
- Solar heat gain
- Foundry equipment
- Blast furnaces

## Get the heat out

How do you get the heat out of your enclosure and away from those critical components? There are several basic cooling methods available, depending on the cooling requirements and the enclosure environment.

### Radiation and Natural Convection Cooling

If the ambient temperature outside the enclosure is cooler than the inside of the enclosure, some heat will be radiated into the atmosphere from the surface of the enclosure. In environments where dust and water intrusion is not a concern, louvers can be added to allow outside air to flow through the enclosure via natural convection - the movement of air due to its expansion (reduced density) when it's heated and contraction (increased density) when it cools.

On a large scale, natural convection can be a powerful force - it's one of the primary drivers of our weather. But on the scale of an electrical enclosure, its cooling capacity is very limited. For larger heat loads, a more powerful cooling system may be needed.

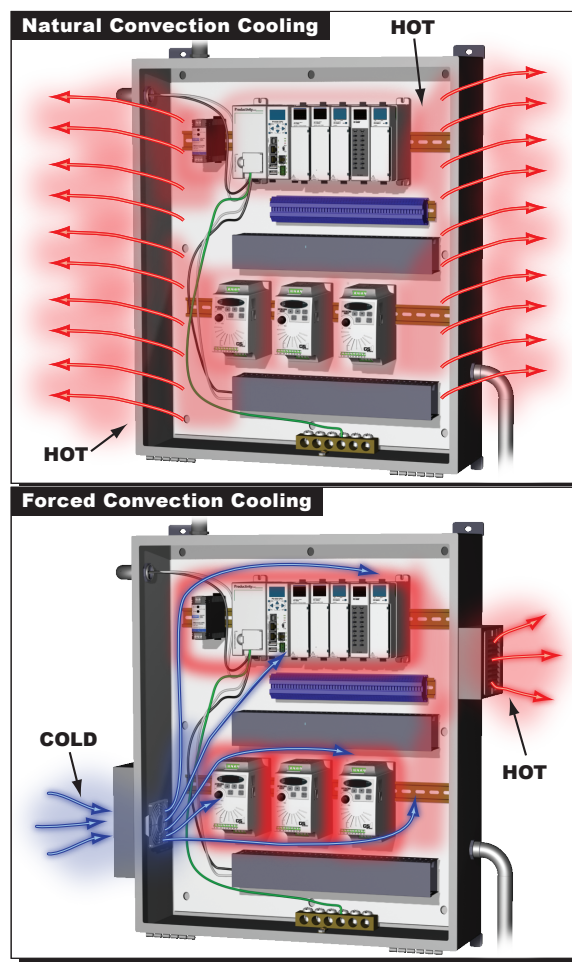
Since they create openings in the enclosure, louvers are typically limited to NEMA 1 and/or NEMA 3R applications. However, some louvers have optional filters that can be added to maintain NEMA 12 protection.

### Forced Convection Cooling

The next step up from natural convection is forced convection cooling. The basic cooling mechanism is the same: cooler air from outside the enclosure passes through the enclosure to remove the heat. The difference is that the air is mechanically forced through the enclosure by a filter fan. The fan produces higher air flow rates than natural convection, which in turn increases the amount of heat removed.

As with natural convection cooling, the ambient air temperature must be lower than the desired enclosure temperature for forced convection to be effective.

A typical forced convection system consists of a fan and a grille, with a filter on the intake device and either a filter or louvers on the exhaust device. The filters and louvers allow the enclosure to maintain NEMA 12 protection. In NEMA 4 or NEMA 4X environments, hoods can be added to both the fan and the grille to prevent the ingress of water.



# Enclosure Cooling

## Closed Loop Cooling

If the environment is harsh, with heavy dust and debris or the presence of airborne chemicals, or there are wash-down requirements, the cooling system must be able to keep the ambient air separate from the air inside the enclosure.

Closed loop systems, which include heat exchangers and air conditioners, circulate the internal air and ambient air through separate chambers connected by a refrigeration system that transfers heat from the internal air stream to the external air stream. Heat exchangers and air conditioners are both closed loop cooling systems. The primary difference in the two is the refrigeration system.

The refrigeration system in a heat exchanger is a set of sealed tubes of alcohol. Heat absorbed from the internal enclosure air boils the liquid alcohol at the bottom of the tube, causing it to rise to the top. The heat is then rejected to the cooler ambient air stream, causing the alcohol to condense back to a liquid and fall to the bottom.

Heat exchangers are very efficient because the refrigeration system has no moving parts - the only moving parts are the two fans. But for the heat to transfer through the system, the ambient air must be colder than the air inside the enclosure, just as it must be for filter fans.

Enclosure air conditioners function in the same manner as a residential or automotive air conditioner, with refrigeration loop powered by a compressor. The refrigerant absorbs heat from the internal air at the evaporator coil and rejects it to the ambient air at the condenser coil. Unlike heat exchangers, they can provide cooling even if the ambient temperature is higher than the enclosure temperature. They can also be scaled to handle larger heat loads than any other cooling system.

Enclosure air conditioners are available for NEMA 12, NEMA 4 and NEMA 4X applications.

### Vortex Coolers

Vortex coolers create a stream of extremely cold air from a supply of filtered compressed air. The cold air is injected into the enclosure, displacing warm air which is exhausted back through the vortex cooler. While not a closed-loop system, they can be used in the same harsh environments since the cold air injected into the enclosure is filtered air from a compressed air system, not ambient air. Vortex coolers can also be used where the ambient temperature is higher than the enclosure temperature.

Since vortex coolers prevent the ingress of ambient air or sprayed water and are made from corrosion-resistant materials, they can be used on NEMA 4X enclosures in harsh, wash-down, and/or corrosive environments.

Vortex coolers are commonly used in lieu of a small or medium enclosure air conditioner in applications where there isn't adequate space to mount an air conditioner, provided there is an adequate supply of compressed air.

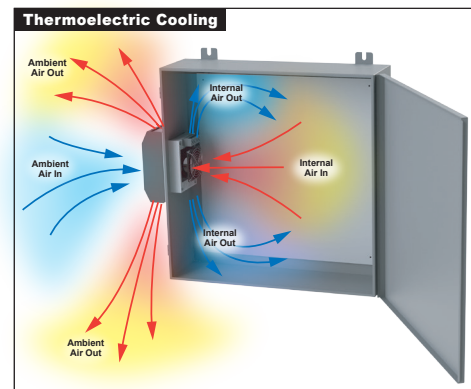
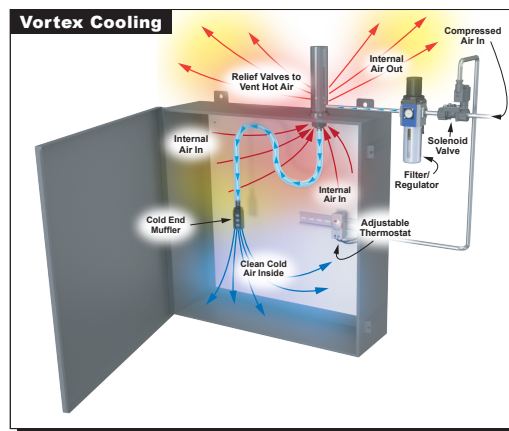
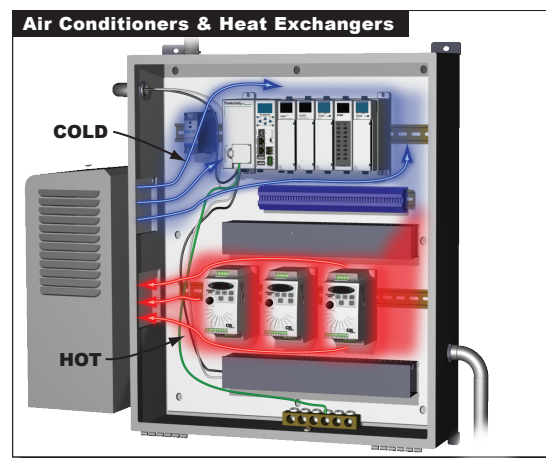
### Thermoelectric Coolers

Another alternative to a conventional air conditioner is a thermoelectric cooler, which is sometimes referred to as a Peltier cooler. They function in a manner similar to an air conditioner or heat exchanger, with fans inside and outside the enclosure, but with a thermoelectric unit replacing the fluid-based refrigeration system.

The thermoelectric units consist of an array of semiconductors sandwiched between two ceramic plates. When a DC current is applied to the semiconductor array, heat is driven from one plate to the other, creating a cold side and a warm side. This is known as the Peltier Effect. Fans circulate air across each of the plates, allowing the cold plate to absorb heat from the enclosure and the warm plate to reject it to the ambient air.

Like vortex coolers, thermoelectric coolers can be used with NEMA 4X enclosures in harsh, wash-down, and corrosive environments, and where the ambient temperature exceeds the enclosure temperature.

Thermoelectric coolers are an alternative to air conditioners in small cooling capacity applications where there isn't adequate space for an air conditioner.



# Selecting an Enclosure Cooling Device

## Cooling Basics

To select the proper cooling device for your enclosure, you need to determine how much heat the device must remove from the enclosure to maintain the desired internal temperature, which is the sum of two component heat loads: **Internal Heat Load** and **Heat Transfer Load**.

### Internal Heat Load ( $Q_i$ )

The sum of all heat generated by the components within the enclosure. This can be calculated by adding the maximum heat output for each device installed in the enclosure (the worst-case conditions for the enclosure). The maximum heat output is typically specified in watts in the manufacturer's documentation. If it is not, contact the manufacturer to request the heat output or for guidance on how to measure or calculate it.

### Heat Transfer Load ( $Q_x$ )

The heat gained (positive heat transfer) or lost (negative heat transfer) through the enclosure exterior surface with the surrounding ambient air. This can be calculated with the following formula:

$Q_x = kA\Delta T$  (BTU/h), where:

$k$  = **heat transfer coefficient** (BTU/(h·ft<sup>2</sup>·°F))

The heat transfer coefficient is a measure of how easily an enclosure conducts heat from the internal air to the external air, which varies with the enclosure material. Suggested values for various enclosure materials are provided below:

Enclosure Material	$k$ , BTU/(h·ft <sup>2</sup> ·°F)
Painted carbon steel	0.97
Stainless steel	0.83
Aluminum	2.1
Polycarbonate, fiberglass, PVC, ABS	0.62

$A$  = **exposed enclosure surface area** (ft<sup>2</sup>)

The total surface area of a rectangular enclosure is:

$A = 2HW + 2HD + 2WD$ , where:

$H$  = **height**

$W$  = **width**

$D$  = **depth**

But it's important to properly account for any surfaces that are against walls or floors, as those surfaces will absorb/reject heat from adjacent surfaces at a different rate (that is, have a different  $k$  value) than the exposed surfaces. Quantifying that difference is far beyond the scope of this document, but the  $q$  value for those surfaces will usually be less than the value for exposed surfaces. Therefore, the conservative design approach should be to **exclude those surfaces when  $\Delta T < 0$  and use the total surface area when  $\Delta T > 0$** .

The equations for excluding those surfaces in several common situations are listed below.

<b>Wall-mount</b> (excludes back of the enclosure)	$A = HW + 2HD + 2WD$
<b>Freestanding enclosure</b> (excludes the bottom of the enclosure)	$A = 2HW + 2HD + WD$
<b>Freestanding enclosure against a wall</b> (excludes both the bottom and back)	$A = HW + 2HD + WD$
<b>Freestanding enclosure in a corner</b> (excludes the bottom, back, and one side)	$A = HW + HD + WD$

Using these formulas as written will produce answers in either in<sup>2</sup> or mm<sup>2</sup>, depending on the enclosure. To convert to ft<sup>2</sup> use the appropriate conversion:

$1 \text{ ft}^2 = 144 \text{ in}^2$

$1 \text{ ft}^2 = 92,900 \text{ mm}^2$

# Selecting an Enclosure Cooling Device

$\Delta T = T_A - T_E$ , where  $T_A$  is maximum ambient air temperature (°F) and  $T_E$  is maximum allowable enclosure air temperature (°F)

Note that  $\Delta T$  may be negative if the ambient temperature is less than the enclosure temperature. When this is the case, the heat transfer load will also be negative, meaning that the ambient air is providing some degree of cooling. Whereas a positive  $\Delta T$  indicates that the ambient air is warming the enclosure.

A positive  $\Delta T$  also indicates that neither a fan nor a heat exchanger is a viable cooling device for this application. Both devices exchange heat between the interior and exterior of the enclosure. Since heat will always move from the higher temperature material to the lower temperature, these devices will add heat to the enclosure which will raise the internal air temperature, not lower it.

The maximum allowable enclosure air temperature will typically be dictated by the maximum operating temperature of the components inside the enclosure. Be sure to choose the component value with the lowest maximum operating temperature.

## Required Cooling Capacity ( $Q_r$ )

The required cooling capacity ( $Q_r$ ) for an enclosure is simply the sum of the Internal Heat Load and the Heat Transfer Load. However, as presented these values cannot be simply added since one is typically given in watts and the other in BTU/h. Additionally, fan and heat exchanger sizing formulas require the total heat load in watts, while the cooling capacities of vortex coolers are generally expressed in BTU/h. However, the cooling capacities of air conditioners and thermoelectric coolers may be expressed in either unit, or sometimes both. Apply one of the following conversions to the heat loads to add them:

$$1 \text{ W} = 3.41 \text{ BTU/h} \quad Q_r (\text{BTU/h}) = Q_i \times 3.41 (\text{BTU/h})/\text{W} + Q_x$$

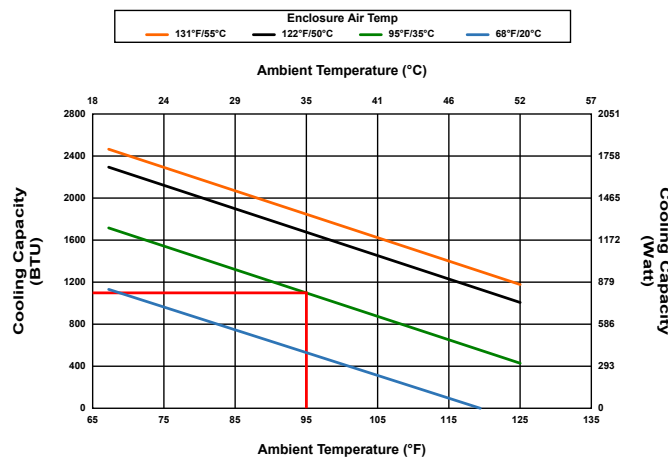
$$1 \text{ BTU/h} = 0.293 \text{ W} \quad Q_r (\text{W}) = Q_i + Q_x \times 0.293 \text{ W}/(\text{BTU/h})$$

## Vortex Cooler Selection

Once the required cooling capacity has been calculated, selection of a vortex cooler is simple – just select a cooler with a nominal cooling capacity greater than the calculated requirement.

## Air Conditioner and Thermoelectric Cooler Selection

Selecting an air conditioner or thermoelectric cooler is more complex because their performance depends on both the ambient temperature and the enclosure temperature. Generally, more strenuous operating parameters (higher ambient temperature, lower enclosure air temperature) will reduce the unit's performance. For this reason, manufacturers publish curves that graphically describe the unit's cooling capacity over a range of conditions. Here's an example:



As indicated by the red lines, this air conditioner would be able to remove 1000 BTU/H when the ambient temperature is 95°F and enclosure air temperature is 95°F. If the ambient temperature was only 75°F, the cooling capacity of the unit would increase to approximately 1105 BTU/H as the lower ambient temperature increases the unit's condenser's ability to reject heat to the surrounding atmosphere. Conversely, at a 95°F ambient temperature and a 68°F enclosure air temperature, the unit's capacity would be reduced to approximately 945 BTU/H, as the lower enclosure air temperature would reduce the heat transfer rate between the internal enclosure air and the unit's evaporator coils.

To determine if an air conditioner or thermoelectric cooler meets application requirements, simply plot the two maximum temperatures used in the  $\Delta T$  calculations and read the corresponding cooling capacity on the y-axis of the chart. If that value exceeds the required cooling capacity, the air conditioner will be adequate for the application. If not, select a larger capacity unit.



# Selecting an Enclosure Cooling Device

The 95°F/95°F point is typically used as the nominal cooling capacity of the unit. But always keep in mind that any nominal capacity only represents one set of operating parameters. If those parameters do not match the actual application conditions, the actual performance of the air conditioner/thermoelectric cooler will be different.



Never rely solely on a nominal cooling capacity when selecting an air conditioner or a thermoelectric cooler! The nominal capacity is solely intended to provide an approximation to get the user "in the ballpark" of the selection process.

In addition to the required cooling capacity, an air conditioner or thermoelectric cooler should also maintain the NEMA rating of the enclosure. Ideally, it should also operate on a voltage already available within the enclosure to avoid necessitating a transformer or power supply.

## Air Conditioner Selection Example

A NEMA 12 Wiegmann N12302412 wall-mount enclosure (30 in high x 24 in wide x 12 in deep) contains a GS4-4060 AC drive (60 HP 460V) that has a maximum allowable operating temperature of 104°F and is inside a plant with a maximum ambient air temperature of 115°F.

The GS4-4060 specifications table indicates its maximum Watt Loss to be 1147 W.

Internal heat load:

$$Q_i = 1147 \text{ W} \times 3.413 \text{ (BTU/h)/W} = 3914 \text{ BTU/h}$$

Heat load transfer:

$$k = 0.97 \text{ BTU/(h}\cdot\text{ft}^2\cdot^\circ\text{F)}$$

$$\Delta T = 115^\circ\text{F} - 104^\circ\text{F} = 11^\circ\text{F} \text{ (Reminder: } \Delta T > 0 \text{ means that fans or heat exchangers will not cool the enclosure!)}$$

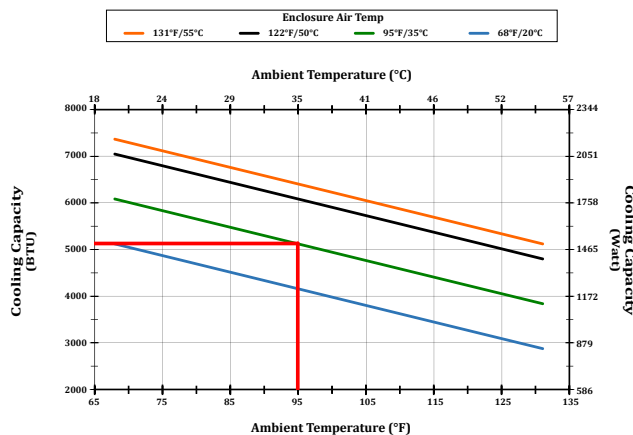
$$A = [2(30 \text{ in} \times 24 \text{ in}) + 2(30 \text{ in} \times 12 \text{ in}) + 2(24 \text{ in} \times 12 \text{ in})]/144 \text{ in}^2/\text{ft}^2 = 19 \text{ ft}^2$$

$$Q_x = kA\Delta T = (0.97 \text{ BTU/(h}\cdot\text{ft}^2\cdot^\circ\text{F)})(19 \text{ ft}^2)(11^\circ\text{F}) = 202 \text{ BTU/h}$$

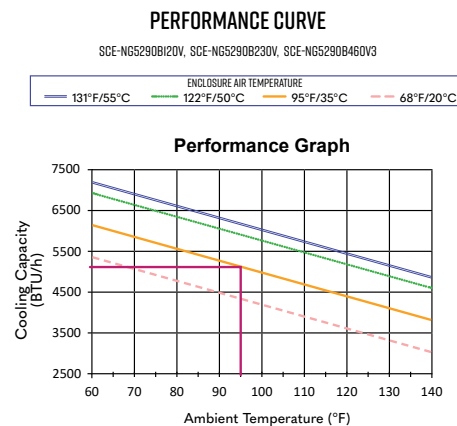
Required cooling capacity:

$$Q_r = Q_i + Q_x = 3914 \text{ BTU/h} + 202 \text{ BTU/h} = 4116 \text{ BTU/h}$$

AutomationDirect offers several NEMA 12 460VAC models that meet or exceed 4605 BTU/h at 104°F. The curves for the appropriate sizes of some of these series are shown below.



The NEMA 12 460VAC selection from this series is **SCE-AC5100B460V**.



The NEMA 12 460VAC selection from this series is **SCE-NG5290B460V3**.

# Selecting an Enclosure Cooling Device

## Heat Exchanger Selection

Heat exchanger capacities also depend on the internal enclosure air temperature and the ambient temperature, but the dependency is a simple linear relationship between the capacity and  $\Delta T$ . So rather than graphing the cooling capacity of the heat exchanger, it is simply expressed in terms of  $W/^{\circ}C$  and compared to the value of  $-Q_i/\Delta T$ .

To convert  $\Delta T$  from  $^{\circ}F$  to  $^{\circ}C$ , use the conversion  $1^{\circ}C = 1.8^{\circ}F$ .



Note that this simplified conversion only works for temperature differences. It does not work for measured temperatures since  $0^{\circ}F \neq 0^{\circ}C$ . DO NOT apply this conversion directly to the ambient and enclosure air temperatures. Only apply it to  $\Delta T$ .

## Heat Exchanger Selection Example

A NEMA 12 Wiegmann [N12302412](#) wall-mount enclosure (30 in high x 24 in wide x 12 in deep) contains a [GS4-4010](#) AC drive (10 HP 460 volt) that has a maximum allowable operating temperature of  $104^{\circ}F$  and is in a plant that has a maximum ambient air temperature of  $90^{\circ}F$ .

The [GS4-4010](#) specifications table indicates its maximum Watt Loss to be 292 watts.

Internal heat load:

$$Q_i = 292 \text{ W}$$

Heat load transfer:

$$k = 0.97 \text{ BTU}/(\text{h} \cdot \text{ft}^2 \cdot ^{\circ}F)$$

$$\Delta T = 90^{\circ}F - 104^{\circ}F = -14^{\circ}F \text{ (Since } \Delta T < 0, \text{ a heat exchanger is a potentially valid cooling device)}$$

$$\Delta T = -14^{\circ}F / (1.8^{\circ}F/^{\circ}C) = -7.8^{\circ}C$$

$$A = [(30 \text{ in} \times 24 \text{ in}) + 2(30 \text{ in} \times 12 \text{ in}) + 2(24 \text{ in} \times 12 \text{ in})] / 144 \text{ in}^2/\text{ft}^2 = 14 \text{ ft}^2$$

$$Q_x = kA\Delta T = (0.97 \text{ BTU}/(\text{h} \cdot \text{ft}^2 \cdot ^{\circ}F))(14 \text{ ft}^2)(-14^{\circ}F) = -190 \text{ BTU/h} \times 0.293 \text{ W}/(\text{BTU/h}) = -56 \text{ W}$$

Required cooling capacity:

$$Q_r = Q_i + Q_x = 292 \text{ W} - 56 \text{ W} = 236 \text{ W}$$

$$-Q_r/\Delta T = -236 \text{ W}/-7.8^{\circ}C = 30 \text{ W}/^{\circ}C$$

A Stratus heat exchanger with a capacity of at least  $30 \text{ W}/^{\circ}C$  is needed, such as a [TE30-030-17-04](#).



# Selecting an Enclosure Cooling Device

## Fan Selection

A fan cools the enclosure simply by displacing the hot air within the enclosure with cooler air from the outside. Combining the specific heat of air, the density of air, and various conversion factors into a single coefficient gives a simple equation for correlating a fan's required airflow rate to the enclosure's required cooling capacity:

$$F_r = -(3.17 \text{ CFM} \cdot ^\circ\text{F}/\text{W}) Q_i / \Delta T$$

Once the fan airflow requirement is determined, fan selection is simply a matter of finding a fan with an airflow greater than the required airflow. Most applications will require an accompanying grille and one or more filters which will restrict airflow to some degree. (Exceptions would be a NEMA 1 enclosure or a similar circumstance where an open vent can be used for exhaust/makeup air.) Therefore, the fan selection should almost always be made based on the "Airflow with Grille and Filters (CFM)" column of the specifications, not the fan's Free Airflow.

## Fan Selection Example

A NEMA 12 Wiegmann N12302412 wall-mount enclosure (30 in high x 24 in wide x 12 in deep) contains a GS4-2025 AC drive (25 HP 230 volt) that has a maximum allowable operating temperature of 104°F and is in a plant that has a maximum ambient air temperature of 92°F.

The GS4-2025 specifications table indicates its maximum Watt Loss to be 733 watts.

Internal heat load:

$$Q_i = 733 \text{ W}$$

Heat load transfer:

$$k = 0.97 \text{ BTU}/(\text{h} \cdot \text{ft}^2 \cdot ^\circ\text{F})$$

$$\Delta T = 92^\circ\text{F} - 104^\circ\text{F} = -12^\circ\text{F} \text{ (Since } \Delta T < 0, \text{ a fan is a potentially valid cooling device)}$$

$$A = [(30 \text{ in} \times 24 \text{ in}) + 2(30 \text{ in} \times 12 \text{ in}) + 2(24 \text{ in} \times 12 \text{ in})]/144 \text{ in}^2/\text{ft}^2 = 14 \text{ ft}^2$$

$$Q_x = kA\Delta T = (0.97 \text{ BTU}/(\text{h} \cdot \text{ft}^2 \cdot ^\circ\text{F}))(14 \text{ ft}^2)(-12^\circ\text{F}) = -163 \text{ BTU/h} \times 0.293 \text{ W}/(\text{BTU/h}) = -48 \text{ W}$$

Required cooling capacity:

$$Q_r = Q_i + Q_x = 733 \text{ W} - 48 \text{ W} = 685 \text{ W}$$

Required air flow:

$$F_r = -(3.17 \text{ CFM} \cdot ^\circ\text{F}/\text{W})(685 \text{ W})/(-12^\circ\text{F}) = 181 \text{ CFM}$$

Possible 230VAC fan & grille combinations include:

- Stego 018840-40 exhaust fan with 118840-30 grille (187 CFM)
- Fandis FF20A230UE1 intake fan with FF20U grille (209 CFM)
- Stego 018740-30 intake fan with 118740-00 grille (220 CFM)
- Stego 018840-00 exhaust fan with 118840-30 grille (243 CFM)
- Fandis TP19U230B1 roof-mount exhaust fan with FF20U grille (297 CFM)



# Filter Fan Options for Cooling your Enclosure



- Both intake (FPI) and exhaust (FPO) fans are available.
- Exhaust fans and grilles available with air flaps or filters.
- Using air flaps on the exhaust reduces the number of filters to maintain.

## Filter Fan Series

- Easy filter change
- Outer door lock for outdoor models
- Impact resistant
- Weather/UV-resistant -f1
- Flammability Rating: UL94V-0
- Adhesive mounting for non-screw installation (except outdoor models)
- Low noise
- 120VAC and 24VDC models available

## Filter Fan Plus Series

- Easy filter change
- Hinged cover
- Impact resistant
- Weather/UV-resistant-UL-f1
- Flammability Rating: UL94V-0
- Unique ratchet mechanism for no-screw installation
- Low noise
- 120, 230VAC and 12, 24, 48VDC models available

## Virdis Series

- Cover slides open for easy filter change without tools
- Available in NEMA 12 indoor models and NEMA 3R outdoor models
- Flammability Rating: at least UL 94V-0
- Quick, tool-free mounting
- Low noise
- 120VAC, 230VAC and 24VDC models available
- Includes self-adhesive gasket pre-installed on frame
- G3 (coarse) and G4 (coarse) replacement filter mats available



# Filter Fan Hoods



## Hose-Proof Filter Fan Hoods

- Stainless steel hood with food-grade silicone seal
- Fits all Stego Filter Fan and Filter Fan Plus fans and exhaust grilles (except outdoor Filter Fans)
- Maintains an enclosure's NEMA/UL Type 4 or 4X rating in washdown environments



# Virdis Series Filter Fans



## Applications

Virdis Series Filter fans are a practical solution for removing heat from the cabinet. They channel filtered ambient air into the enclosure, expelling warm internal air through an exhaust filter or roof unit to reduce temperatures and protect electronic components from overheating.

## Features

- Cover slides open for easy filter change without tools
- No-screw installation
- Low noise
- 120VAC, 230VAC, and 24VDC models available
- Permanent Polyurethane sealing gasket
- G3 (coarse) and G4 (coarse) replacement filter mats available



Easy Filter Access



Tool Free Mounting System

# Virdis Series NEMA 12 Filter Fans



Fandis



## Applications

NEMA 12 filter fans are for indoor use only. They are typically mounted on the side or the door of an enclosure, but can be mounted on the bottom surface of a wall-mounted enclosure. They should not be mounted on the roof of an enclosure. Fan airflow direction is from outside to inside the enclosure. A grille or roof vent with an equal or larger cutout is required to exhaust the warm air from the inside of the enclosure.

## Features

- Available in ANSI 61 gray and RAL 7035 light gray
- Average arresstance: 85% with included G3 (coarse) filter
- Connection Type- 8.8-9.4 CFM is 22AWG flying leads, all others are 20-14AWG screwless cage clamps
- G3 (coarse) and G4 (coarse) replacement filter mats available
- Flammability Rating: UL 94V-5VB for ANSI 61 units, RAL 7035 units are rated UL94V-V0

## Agency Approvals

- All models: IP54 and UL Type 12 when using supplied filter
- UL Recognized File E237844
- UL Listed File E500932
- CSA Certified File 260922



Virdis Series NEMA 12 Filter Fans												
Part Number	Price	Color	Cutout Dimensions	Operating Voltage <sup>1</sup>	Power Consumption <sup>1</sup> (W)	Current Draw <sup>1</sup>	FreeAirflow <sup>1,2</sup> (CFM)	Air Flow with Grille and Filters <sup>1,3</sup> (CFM)	Max. Static Pressure (Pa)	Min/Max Operating Temp.	L10 Life Expectancy	Drawing Link
<a href="#">FF08A115UN</a>	\$66.00	RAL 7035	3.62 x 3.62 [92 x 92]	115 VAC	9	92 mA	8.8	6.5	33	14/131°F [-10/55°C]	50,000 h at 68°F	<a href="#">PDF</a>
<a href="#">FF08A115ZN</a>	\$70.00	ANSI 61				92 mA						<a href="#">PDF</a>
<a href="#">FF08A230UN</a>	\$66.00	RAL 7035		230 VAC	10	50 mA	<a href="#">PDF</a>					
<a href="#">FF08D24UN</a>	\$72.00	RAL 7035		24 VDC	2	85 mA	9.4	6.8	28		100,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF08D24ZN</a>	\$77.00	ANSI 61				85 mA						<a href="#">PDF</a>
<a href="#">FF12A115UF</a>	\$81.00	RAL 7035	4.88 x 4.88 [124 x 124]4.88 x 4.88 [124 x 124]	115 VAC	16	180 mA	29	20	62		57,000 at 77°F	<a href="#">PDF</a>
<a href="#">FF12A115ZF</a>	\$83.00	ANSI 61				180 mA						<a href="#">PDF</a>
<a href="#">FF12A230UF</a>	\$81.00	RAL 7035		230 VAC	17	100 mA	<a href="#">PDF</a>					
<a href="#">FF12D24UN</a>	\$86.00	RAL 7035		24 VDC	7	310 mA	27	19	58		100,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF12D24ZN</a>	\$88.00	ANSI 61				7						310 mA
<a href="#">FF13PA115UF</a>	\$114.00	RAL 7035	6.97 x 6.97 [177 x 177]	115 VAC	19	202 mA	65	44	60		57,000 at 77°F	<a href="#">PDF</a>
<a href="#">FF13PA115ZF</a>	\$121.00	ANSI 61				202 mA						<a href="#">PDF</a>
<a href="#">FF13PA230UF</a>	\$114.00	RAL 7035		230 VAC	18	100 mA	<a href="#">PDF</a>					
<a href="#">FF13PD24UN</a>	\$164.00	RAL 7035		24 VDC	8	342 mA	59	45	62		100,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF13PD24ZN</a>	\$174.00	ANSI 61				342 mA						<a href="#">PDF</a>
<a href="#">FF15A115UN2</a>	\$159.00	RAL 7035	8.78 x 8.78 [223 x 223]	115 VAC	41	361 mA	155	120	184		40,000 h at 104°F	<a href="#">PDF</a>
<a href="#">FF15A115ZN2</a>	\$169.00	ANSI 61				361 mA						<a href="#">PDF</a>
<a href="#">FF15A230UN2</a>	\$159.00	RAL 7035		230 VAC		194 mA	159	195	<a href="#">PDF</a>			
<a href="#">FF15D24UF</a>	\$262.00	RAL 7035		24 VDC	31	1.30A	175	118	156		70,000 h at 104°F	<a href="#">PDF</a>
<a href="#">FF15D24ZF</a>	\$278.00	ANSI 61		24 VDC		1.30A						<a href="#">PDF</a>

Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.

2.Free airflow and maximum static pressure are measured with fan only.

3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.

4.Dimensions in inches [millimeters].

# Virdis Series NEMA 12 Filter Fans



Fandis

## Virdis Series NEMA 12 Filter Fans

Part Number	Price	Color	Cutout Dimensions	Operating Voltage <sup>1</sup> (VAC)	Power Consumption <sup>1</sup> (W)	Current Draw <sup>1</sup>	Free Airflow <sup>1,2</sup> (CFM)	Air Flow with Grille and Filters <sup>1,3</sup> (CFM)	Max. Static Pressure (Pa) <sup>1,2</sup>	Min/Max Operating Temp.	L10 Life Expectancy	Drawing Link
<a href="#">FF20A115UE1</a>	\$279.00	RAL 7035	11.46 x 11.46 [291 x 291]	115	83	730 mA	297	209209 CFM	145	14/131°F [-10/55°C] 14/131°F [-10/55°C]	63,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF20A115ZE1</a>	\$296.00	ANSI 61										<a href="#">PDF</a>
<a href="#">FF20A230UE1</a>	\$254.00	RAL 7035		230	116	350 mA						<a href="#">PDF</a>
<a href="#">FF20GA115UE1</a>	\$313.00	RAL 7035		115	156	1.37A	436	253	170		53,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF20GA115ZE1</a>	\$332.00	ANSI 61										<a href="#">PDF</a>
<a href="#">FF20GA230UE1</a>	\$290.00	RAL 7035		230	158	690 mA	450	277	210			<a href="#">PDF</a>

Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.

2.Free airflow and maximum static pressure are measured with fan only.

3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.

4.Dimensions in inches [millimeters].

# Virdis Series NEMA 3R Filter Fans



Fandis



## Applications

NEMA 3R filter fans are specifically designed to preserve the integrity of components housed within an electrical enclosure located outdoors, providing a degree of protection from falling dirt, dust, rain, sleet and from damage caused by the formation of ice.

NEMA 3R filter fans are constructed to ensure greater resistance to degradation due to environmental factors, including a durable plastic construction that allows direct sunlight or water exposure without the risk of premature aging.

Fan airflow direction is from outside to inside. A grille or roof vent with an equal or larger cutout is required to exhaust the warm air from the inside of the enclosure.

## Features

- Available in RAL9005 Black
- Average arresstance: 85% with included G3 (coarse) filter
- Connection Type- 8.8-9.4 CFM units are 22AWG flying leads, all others are 20-14AWG screwless cage clamps
- G3 (coarse) and G4 (coarse) replacement filter mats available

## Agency Approvals

- All models: IP54 and UL Type 12 when using supplied filter
- UL Recognized File E237844
- UL Listed File E500932
- CSA Certified File 260922



Virdis Series NEMA 3R Filter Fans											
Part Number	Price	Cutout Dimensions	Operating Voltage <sup>1</sup>	Power Consumption <sup>1</sup> (W)	Current Draw <sup>1</sup>	FreeAirflow <sup>1,2</sup> (CFM)	Air Flow with Grille and Filters <sup>1,3</sup> (CFM)	Max. Static Pressure (Pa)	Min/Max Operating Temp.	L10 Life Expectancy	Drawing Link
<a href="#">FF08A115NN3</a>	\$117.00	3.62 x 3.62 [92 x 92]	115 VAC	9	92 mA	8.8	6.5	33	14/131°F [-10/55°C]	50,000 h at 68°F	<a href="#">PDF</a>
<a href="#">FF08D24NN3</a>	\$126.00		24 VDC	2	85 mA	9.4	6.8	28		100,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF12A115NF53</a>	\$149.00	4.92 x 4.92 [125 x 125]	115 VAC	16	180 mA	23	15	51		57,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF12D24NN53</a>	\$167.00		24 VDC	7	310 mA	21	14	51		100,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF15A115NF53</a>	\$228.00	8.78 x 8.78 [223 x 223]	115 VAC	31	260 mA	112	81	131		40,000 h at 104°F	<a href="#">PDF</a>
<a href="#">FF15D24NF53</a>	\$331.00		24 VDC		1.30A	135	91	150		70,000 h at 104°F	<a href="#">PDF</a>
<a href="#">FF20A115NE531</a>	\$364.00	11.46 x 11.46 [291 x 291]	115 VAC	83	730 mA	235	162	125		53,000 h at 77°F	<a href="#">PDF</a>
<a href="#">FF20GA115NE31</a>	\$472.00			156	1.37A	436	253	170		63,000 h at 77°F	<a href="#">PDF</a>
Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz. 2.Free airflow and maximum static pressure are measured with fan only. 3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter. 4.Dimensions in inches [millimeters].											

# Virdis Series NEMA 12 or 3R Exhaust Grilles



## Applications

Grilles may be used for: warm-air exhaust when paired with a filter fan, make-up air intake when paired with a reverse-flow (exhaust) filter fan or a roof-mount fan, and free flow ventilation when used as a standalone item.

Grilles are typically mounted on the side or the door of an enclosure, but can be mounted on the bottom surface of a wall-mounted enclosure. They should never be mounted on the roof of an enclosure. Grilles may be used in NEMA 4 and/or NEMA 4X applications with the addition of a fan hood.

## Features

- Cover slides open for easy filter change without tools
- Quick, tool-free mounting
- Available in RAL 7035 Light Gray, ANSI 61 Gray and RAL 9005 Black

## Standards

- IP54 and UL 12 and 3R when using supplied filter (outdoor models IP55)
- UL E234324
- UL Listed File E500932
- CSA Certified File 260922



Virdis Series NEMA 12 or 3R Exhaust Grills					
Part Number	Price	Color	Cutout Dimensions	NEMA Rating	Drawing Link
<a href="#">FF08U</a>	\$21.00	RAL 7035	3.62 x 3.62 [92 x 92]	12	<a href="#">PDF</a>
<a href="#">FF08Z</a>	\$22.50	ANSI 61		12	<a href="#">PDF</a>
<a href="#">FF08N3</a>	\$52.00	RAL 9005		3R	<a href="#">PDF</a>
<a href="#">FF12U</a>	\$23.50	RAL 7035	4.88 x 4.88 [124 x 124]	12	<a href="#">PDF</a>
<a href="#">FF12Z</a>	\$25.00	ANSI 61		12	<a href="#">PDF</a>
<a href="#">FF12N53</a>	\$61.00	RAL 9005	4.92 x 4.92 [125 x 125]	3R	<a href="#">PDF</a>
<a href="#">FF13U</a>	\$28.00	RAL 7035	6.97 x 6.97 [177 x 177]	12	<a href="#">PDF</a>
<a href="#">FF13Z</a>	\$30.00	ANSI 61		12	<a href="#">PDF</a>
<a href="#">FF15U</a>	\$34.50	RAL 7035	8.78 x 8.78 [223 x 223]	12	<a href="#">PDF</a>
<a href="#">FF15Z</a>	\$36.50	ANSI 61		12	<a href="#">PDF</a>
<a href="#">FF15N53</a>	\$85.00	RAL 9005		3R	<a href="#">PDF</a>
<a href="#">FF20U</a>	\$56.00	RAL 7035	11.46 x 11.46 [291 x 291]	12	<a href="#">PDF</a>
<a href="#">FF20Z</a>	\$59.00	ANSI 61		12	<a href="#">PDF</a>
<a href="#">FF20N53</a>	\$117.00	RAL 9005		3R	<a href="#">PDF</a>

Note: Dimensions in inches (millimeters).





# Virdis Series NEMA 12 Roof Fans and Vents



Fandis

## Applications

Roof exhaust units are commonly used in restricted spaces to dissipate hot air that is extracted from the top of enclosures.

These units can be provided with an exhaust filter for either convection cooling or forced air-cooling in combination with a fan.



## Roof Fans

Roof fans provide an alternative where a conventional side-mounted filter fan is impractical due to tight spaces in or around the sides of the enclosure. Fan airflow direction is from inside to outside. A grille with an equal or larger cutout is required to provide make-up air to replace the warm air exhausted by the fan.

## Roof Vents

Roof vents are used for exhaust of hot air from inside the enclosure where tight spaces in or around the sides of an enclosure preclude the use of a grille. Roof vents may provide natural convection ventilation when used alone, or facilitate forced air cooling when paired with a filter fan.



## Features

- Mate with any plate thickness via eight mounting screws.
- Colored RAL 7035 Gray
- Permanent Polyurethane sealing gasket

## Standards

- UL recognized — file: E234324
- UL Listed File E500932
- CSA Certified File 260922

### Virdis Series NEMA 12 Roof Fans

Part Number	Price	IP Rating	Cutout Dimensions	Operating Voltage <sup>1</sup> (VAC)	Power Consumption <sup>1</sup> (W)	Current Draw <sup>1</sup> (MA)	FreeAirflow <sup>1,2</sup> (CFM)	Air Flow with Grille and Filters <sup>1,3</sup> (CFM)	Max. Static Pressure (PA)	Min/Max Operating Temp.	L10 Life Expectancy	Drawing Link
<a href="#">TP19U115B541</a>	\$336.00	IP54	6.89 x 6.89 [175 x 175]	115	97	850	288	259	480	14/131°F [-10/55°C]	48,000 h at 77 °F	<a href="#">PDF</a>
<a href="#">TP19U115B1</a>	\$317.00	IP24		115	97	850	338	297	565		70,000 H AT 77 °F	<a href="#">PDF</a>
<a href="#">TP19U230B1</a>		IP24		230	81	360	338	297	465		62,500 H AT 77 °F	<a href="#">PDF</a>

Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.  
 2.Free airflow and maximum static pressure are measured with fan only.  
 3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.  
 4.Dimensions in inches [millimeters].

### Virdis Series NEMA 12 Roof Vents

Part Number	Price	IP Rating	Cutout Dimensions	Drawing Link
<a href="#">TP19U551</a>	\$188.00	IP55	6.89 x 6.89 [175 x 175]	<a href="#">PDF</a>

Note: Dimensions in inches (millimeters).

# Virdis Series Replacement Filters



Fandis

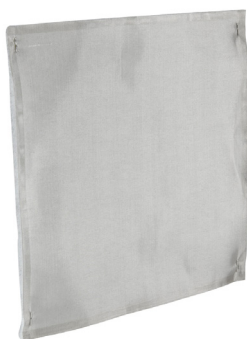


## Filters

- The filter media are made of high performance nonwovens produced from elastic, break-resistant polyolefin fibers with thermal bonding.
- Rating: G3 (coarse), and G4 (coarse)
- The filter media can be cleaned, up to 10 times, by careful washing, blowing dry and lightly beating

## Applications

- Replacement filter mats for Fandis Virdis series filter fans and grilles



Virdis Series Replacement Filters							
Part Number	Price	Use With Filter Fan Part Number	Use With Grille Part Number	Filter Rating	Average Arrestance (Filtering Level)	Filter Density g/m2	Pieces per Package
<b><u>M08FPFK</u></b>	\$11.50	FF8A115UN, FF8A115ZN FF8A115NN3, FF8A230UN FF8D24UN, FF8D24ZN, FF8D24NN3	FF08U, FF08Z, FF08N3	G3 (coarse)	85%	600 g/m2	6
<b><u>M12FPF5K</u></b>	\$17.00	FF12A115UF, FF12A115ZF FF12A115NF53, FF12A230UF, FF12D24UN, FF12D24ZN FF12D24NN53	FF12U, FF12Z, FF12N3	G4 (coarse)	94%		6
<b><u>M12FPFK</u></b>	\$15.00	FF12A115UF, FF12A115ZF, FF12A115NF53, FF12A230UF, FF12D24UN, FF12D24ZN FF12D24NN53	FF12U, FF12Z, FF12N3	G3 (coarse)	85%		6
<b><u>M13FPFK</u></b>	\$20.00	FF13PA115UF, FF13PA115ZF FF13PA230UF, FF13PD24UN FF13PD24ZN	FF13U, FF13Z	G3 (coarse)	85%		6
<b><u>M15FPF5K</u></b>	\$29.50	FF15A115UN2, FF15A115ZN2, FF15A115NF53, FF15A230UN2 FF15D24UF, FF15D24ZF FF15D24NF53	FF15U, FF15Z, FF15N3	G4 (coarse)	94%		6
<b><u>M15FPFK</u></b>	\$26.00	FF15A115UN2, FF15A115ZN2, FF15A115NF53, FF15A230UN2 FF15D24UF, FF15D24ZF FF15D24NF53	FF15U, FF15Z, FF15N3	G3 (coarse)	85%		6
<b><u>M20FPF5K</u></b>	\$39.50	FF20A115UE1, FF20A115ZE1 FF20A115NE531, FF20A230UE1	FF20U, FF20Z, FF20N3	G4 (coarse)	94%		6
<b><u>M20FPFK</u></b>	\$34.00	FF20A115UE1, FF20A115ZE1 FF20A115NE531, FF20A230UE1	FF20U, FF20Z, FF20N3	G3 (coarse)	85%		6
<b><u>M20FPF-EU3RMK</u></b>	\$75.00	FF20GA115UE1, FF20GA115ZE1 FF20GA115NE531, FF20GA230UE1	FF20U, FF20Z, FF20N3	G3 (coarse)	85%		2

# Industrial strength cooling options for your enclosure from AutomationDirect

## Heat Exchangers

- For NEMA 4 and 4X enclosures
- Closed loop cooling
- Energy efficient: uses approximately the same power as a filtered fan system
- 120VAC and 24VDC models available
- UL
- Made in the USA



## Air Conditioning Units

- For NEMA 12, 4, 4X type enclosures
- Digital temperature controller
- Active condensate evaporation system
- High unit efficiency
- Tough industrial construction
- Compressor protection system



## Enclosure Vortex Coolers

- For NEMA 12, 4, 4X type enclosures
- Operates on compressed air
- Stainless steel construction
- No moving parts, no maintenance required
- Vortex coolers can be "resized" for changing applications by simply replacing the generator inside the cooler. No need to purchase a new unit
- Replacing the vortex generator takes minutes



## Seifert Thermoelectric Cooling Units

- For NEMA 4, 4X, and 12 enclosures
- Stainless steel housing
- 170, 340, 510, 680 BTU/H cooling capacity
- Recessed mounting
- No maintenance required
- 24VDC and 120VAC power options



# Filter Fan Plus



## Air Flap Design

The Stego Filter Fan Plus series employs a new air flap design for the air outlet. The air flaps have less resistance to airflow than an exhaust filter, which allows the Filter Fan Plus system to achieve higher airflow while still preventing the ingress of contaminants. Curved air flaps react to small airflow volumes for maximum opening of flaps. Filter Fan Plus series fans are for indoor use only.

## Ratchet Mounting

A ratchet mechanism is used for mounting, providing a high stability and tightness. No mounting screws needed. Prevents enclosure wall deformity when mounting. Solid locking ensures uniform seal.

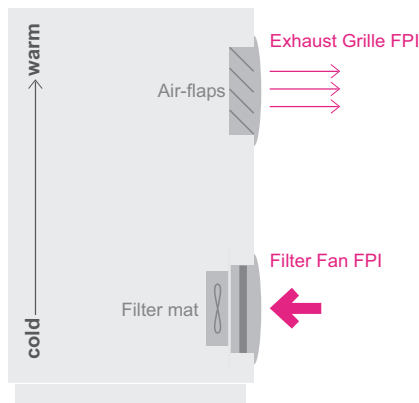


Poured-in-place polyurethane gasket

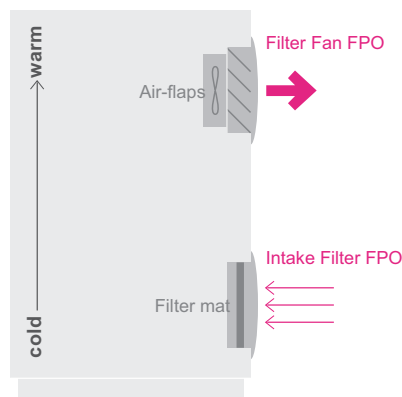


## Filter Fan Plus Models: FPI or FPO

FPI systems (airflow direction 'in') use a filter fan in the lower part of the enclosure, ensuring fresh air is fed into the enclosure. The air rises to the top of the enclosure, cooling the internal space and pushing the warm interior air through the exhaust grille near the top. This grille exhausts hot air more effectively, thanks to new air flap outlet technology.



In FPO systems (airflow direction 'out'), the filter fan is located in the upper area of the enclosure to avoid heat buildups. The heat can be diverted quicker from the critical area. An intake grille with a filter in the lower part of the enclosure allows the colder air from the outside to enter.



A common 3 to 3.5 mm screwdriver is used to release the ratchet mechanism.

# Filter Fan Plus



## Features

- FPI (airflow in) or FPO (airflow out) models
- Air flap outlet technology
- IP54 dust and splash waterproof
- Easy filter change with access provided via the hinged cover
- Impact resistant
- UV light resistant according to UL 746C (f1)
- Flame retardant: UL94 V-0
- Low noise
- 115 and 230VAC models available
- 12, 24, and 48VDC models available
- (4) 6-position ratchet lever mount mechanism will accommodate wall thickness 0.039 - 0.157in (1 - 4mm)

## Construction

- Fan body is light gray plastic polycarbonate
- FPI model has an intake filter fan and an exit grille with air flaps
- FPO model has an exit fan with air flaps and an intake grille with filter
- Poured-in-place polyurethane gasket for better seal
- Mounts using built-in ratchet mechanism; no screws needed. (Hardware provided for optional screw mounting. Hole markings for screw mounting are indicated on mounting frame.)

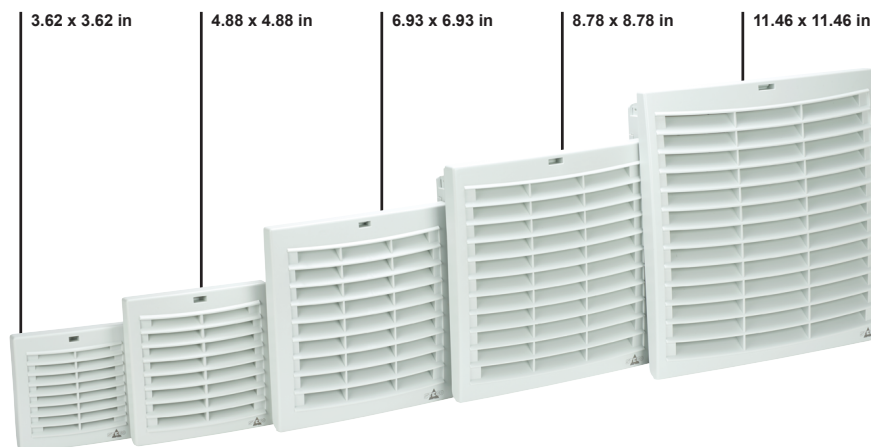
## Standards

- All models: IP54, VDE, EAC, CE, UL 12 when using supplied filter
- UL Recognized - file: E234324



## Applications

Filter fans provide an optimum climate in enclosures with electrical/electronic components. The interior temperature of enclosures is reduced by channeling cooler filtered outside air into the enclosure, thus expelling heated internal air. The resulting air flow prevents formation of localized heat pockets and protects electronic components from overheating.





# Filter Fan Plus



018700-30



118700-00

## 3.62 x 3.62 in [91.95 mm] Cutout Size

- Storage temperature: -40 to 158°F (-40 to 70°C)
- Operating temperature: -4 to 158°F (-20 to 70°C)
- Connection type: 2 stranded wires, 11.8" (300mm) long, AWG 22
- Service life: AC - 52,500 hrs @ 104°F (40°C) DC - 70,000 hrs @ 104°F (40°C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): [086330-00](#) G4 (medium): [086270-00](#) M5 (fine): [086300-00](#)

### Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018700-30</a>	\$82.00	Enclosure fan	G3 filter	230 VAC	12W	52 mA	11 CFM	7.7 CFM	42Pa	39 dBA	<a href="#">PDF</a>
<a href="#">018701-30</a>	\$93.00	Enclosure fan	G3 filter	48 VDC	3W	63 mA	14 CFM	10 CFM	45Pa	51 dBA	<a href="#">PDF</a>
<a href="#">018702-30</a>	\$88.00	Enclosure fan	G3 filter	24 VDC	2.7W	113 mA	13 CFM	9.4 CFM	42Pa	49 dBA	<a href="#">PDF</a>
<a href="#">018703-30</a>	\$93.00	Enclosure fan	G3 filter	12 VDC	2.6W	216 mA	13 CFM	10 CFM	48Pa	36 dBA	<a href="#">PDF</a>
<a href="#">018709-30</a>	\$82.00	Enclosure fan	G3 filter	115 VAC	11W	96 mA	14 CFM	9.4 CFM	60Pa	43 dBA	<a href="#">PDF</a>
<a href="#">118700-00</a>	\$27.50	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.



018800-00



118800-30



### Filter Fan Plus - FPO System

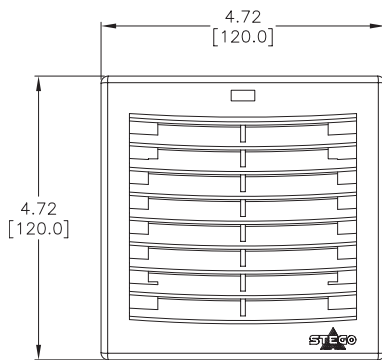
Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018800-00</a>	\$86.00	Enclosure fan	Air flaps	230 VAC	12W	52 mA	14 CFM	8.8 CFM	42Pa	38 dBA	<a href="#">PDF</a>
<a href="#">018800-40</a>	\$82.00	Enclosure fan	G3 filter	230 VAC	12W	52 mA	11 CFM	7.4 CFM	42Pa	36 dBA	<a href="#">PDF</a>
<a href="#">018801-00</a>	\$97.00	Enclosure fan	Air flaps	48 VDC	3W	63 mA	19 CFM	11 CFM	41Pa	49 dBA	<a href="#">PDF</a>
<a href="#">018802-00</a>	\$92.00	Enclosure fan	Air flaps	24 VDC	2.7W	113 mA	18 CFM	10 CFM	37Pa	48 dBA	<a href="#">PDF</a>
<a href="#">018803-00</a>	\$97.00	Enclosure fan	Air flaps	12 VDC	2.6W	216 mA	19 CFM	10 CFM	42Pa	36 dBA	<a href="#">PDF</a>
<a href="#">018809-00</a>	\$86.00	Enclosure fan	Air flaps	115 VAC	11W	96 mA	19 CFM	11 CFM	56Pa	41 dBA	<a href="#">PDF</a>
<a href="#">018809-40</a>	\$82.00	Enclosure fan	G3 filter	115 VAC	11W	96 mA	14 CFM	9.4 CFM	56Pa	36 dBA	<a href="#">PDF</a>
<a href="#">118800-30</a>	\$24.50	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

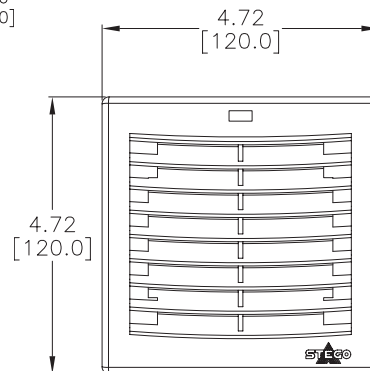
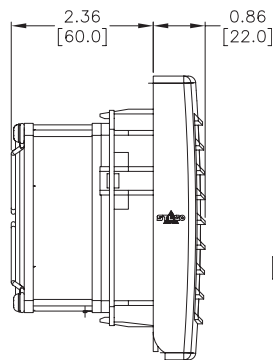
# Filter Fan Plus – Dimensions



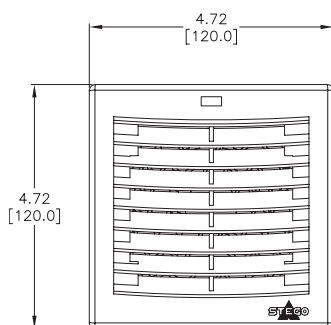
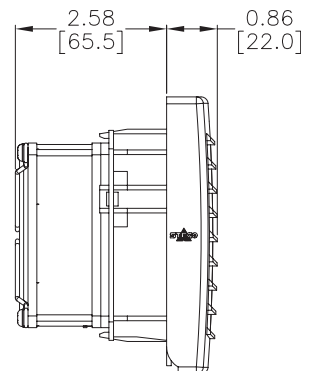
## Dimensions



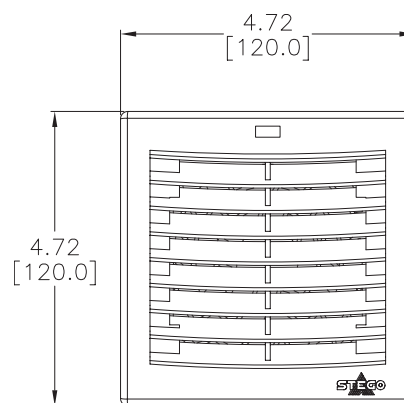
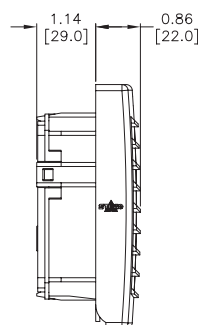
*FPI Fan 3.62 x 3.62 in Cutout Size*



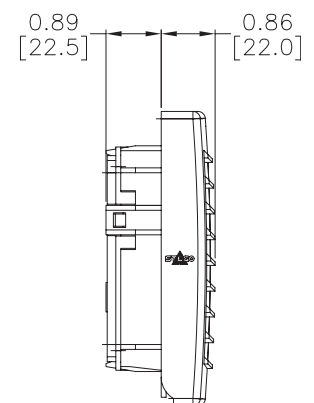
*FPO Fan 3.62 x 3.62 in Cutout Size*



*Exhaust grille for 3.62 x 3.62 in FPI Fan*



*Intake grille for 3.62 x 3.62 in FPO Fan*



# Filter Fan Plus



018710-30



118710-00

## 4.88 x 4.88 in [124 x 124mm] Cutout Size

- Storage temperature: -40 to 158°F (-40 to 70°C)
- Operating temperature: -4 to 158°F (-20 to 70°C)
- Connection type: 2 stranded wires, 11.8" (300mm) long, AWG 22
- Service life: AC - 37,500 hrs @ 104°F (40°C) DC - 65,000 hrs @ 104°F (40°C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): [086330-00](#) G4 (medium): [086270-00](#) M5 (fine): [086300-00](#)

Filter Fan Plus - FPI System											
Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018710-30</a>	\$90.00	Enclosure fan	G3 filter	230 VAC	19W	83 mA	31 CFM	25 CFM	64Pa	49 dBA	<a href="#">PDF</a>
<a href="#">018711-30</a>	\$101.00	Enclosure fan	G3 filter	48 VDC	4.2W	88 mA	39 CFM	33 CFM	92Pa	58 dBA	<a href="#">PDF</a>
<a href="#">018712-30</a>	\$96.00	Enclosure fan	G3 filter	24 VDC	4.1W	171 mA	39 CFM	33 CFM	87Pa	58 dBA	<a href="#">PDF</a>
<a href="#">018713-30</a>	\$101.00	Enclosure fan	G3 filter	12 VDC	3.8W	316 mA	45 CFM	33 CFM	89Pa	42 dBA	<a href="#">PDF</a>
<a href="#">018719-30</a>	\$90.00	Enclosure fan	G3 filter	115 VAC	18W	157 mA	37 CFM	30 CFM	70Pa	53 dBA	<a href="#">PDF</a>
<a href="#">118710-00</a>	\$31.00	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.



018810-00



118810-30



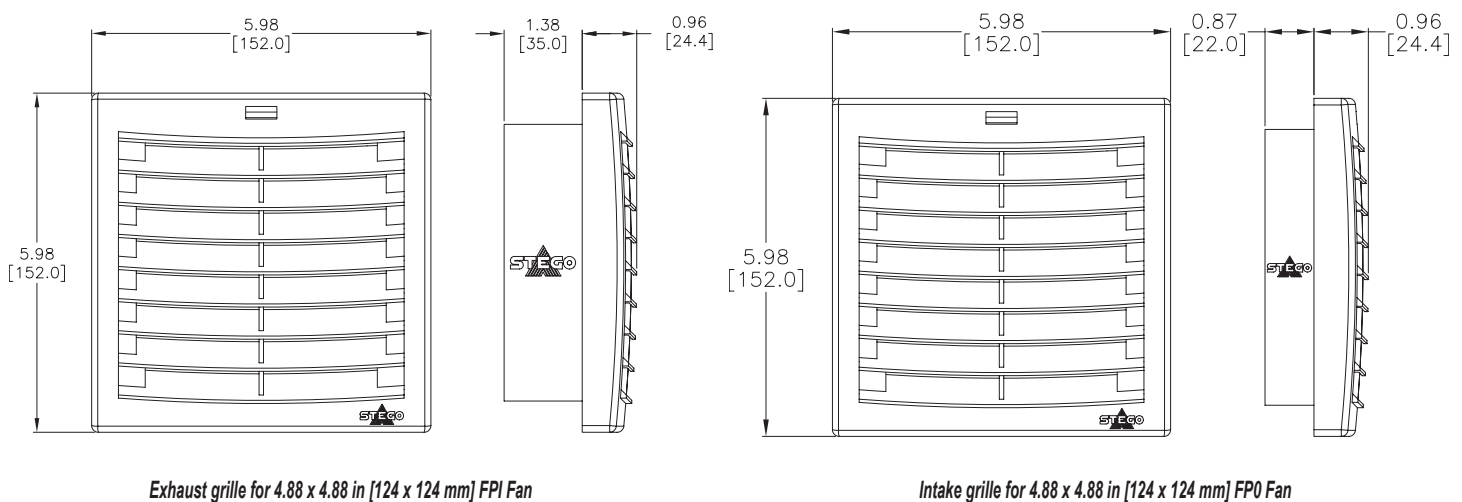
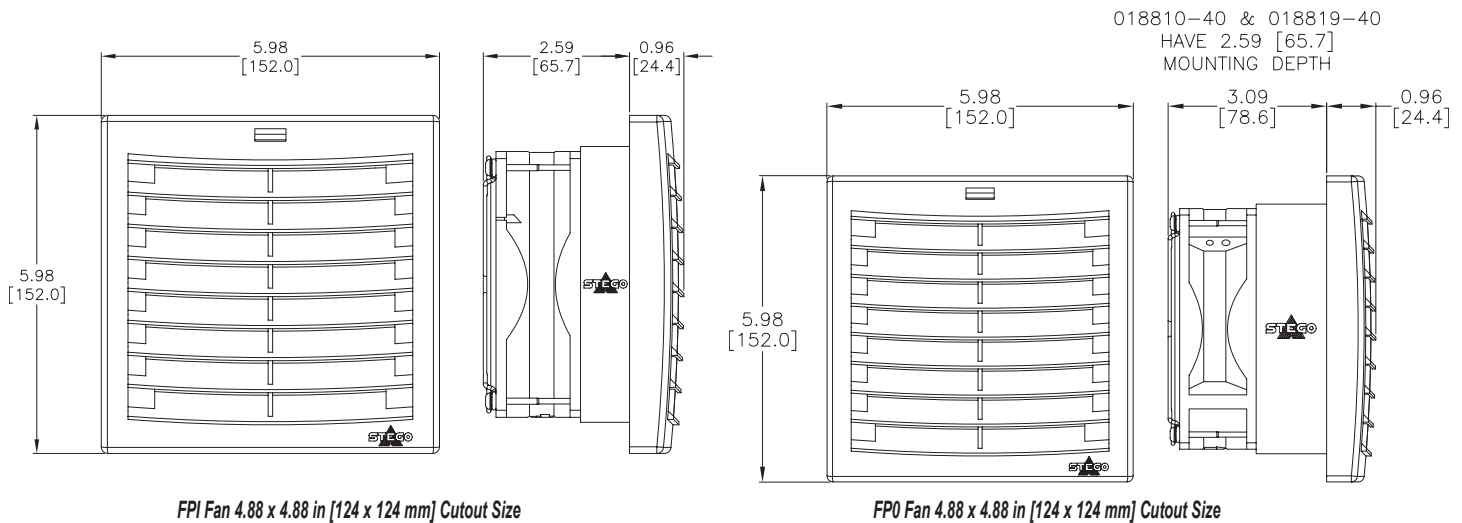
Filter Fan Plus - FPO System											
Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018810-00</a>	\$95.00	Enclosure fan	Air flaps	230 VAC	19W	83 mA	57 CFM	28 CFM	75Pa	49 dBA	<a href="#">PDF</a>
<a href="#">018810-40</a>	\$95.00	Enclosure fan	G3 filter	230 VAC	19W	83 mA	32 CFM	22 CFM	64Pa	42 dBA	<a href="#">PDF</a>
<a href="#">018811-00</a>	\$106.00	Enclosure fan	Air flaps	48 VDC	4.2W	88 mA	74 CFM	37 CFM	92Pa	50 dBA	<a href="#">PDF</a>
<a href="#">018812-00</a>	\$101.00	Enclosure fan	Air flaps	24 VDC	4.5W	188 mA	70 CFM	37 CFM	88Pa	56 dBA	<a href="#">PDF</a>
<a href="#">018813-00</a>	\$106.00	Enclosure fan	Air flaps	12 VDC	4.5W	375 mA	70 CFM	36 CFM	88Pa	42 dBA	<a href="#">PDF</a>
<a href="#">018819-00</a>	\$95.00	Enclosure fan	Air flaps	115 VAC	18W	157 mA	69 CFM	34 CFM	82Pa	52 dBA	<a href="#">PDF</a>
<a href="#">018819-40</a>	\$90.00	Enclosure fan	G3 filter	115 VAC	18W	157 mA	39 CFM	28 CFM	70Pa	42 dBA	<a href="#">PDF</a>
<a href="#">118810-30</a>	\$28.00	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

# Filter Fan Plus – Dimensions



## Dimensions



# Filter Fan Plus



018720-30



118720-00

## 6.93 x 6.93 in [176 x 176mm] Cutout Size

- Storage temperature: -40 to 158°F (-40 to 70°C)
- Operating temperature: -13 to 158°F (-25 to 70°C)
- Connection type: 3-pole clamp for AWG 14 (2.5 mm<sup>2</sup>), screw clamp torque 7.1 lb-in (0.8 N-m) max
- Service life: AC - 65,000 hrs @ 104°F (40°C)  
DC - 80,000 hrs @ 104°F (40°C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): [086330-00](#) G4 (medium): [086270-00](#)  
M5 (fine): [086300-00](#)

### Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018720-30</a>	\$155.00	Enclosure fan	G3 filter	230 VAC	45W	196 mA	100 CFM	82 CFM	121Pa	55 dBA	<a href="#">PDF</a>
<a href="#">018721-30</a>	\$228.00	Enclosure fan	G3 filter	48 VDC	12W	250 mA	100 CFM	87 CFM	122Pa	63 dBA	<a href="#">PDF</a>
<a href="#">018722-30</a>	\$228.00	Enclosure fan	G3 filter	24 VDC	12W	500 mA	105 CFM	92 CFM	125Pa	63 dBA	<a href="#">PDF</a>
<a href="#">018723-30</a>	\$228.00	Enclosure fan	G3 filter	12 VDC	12W	1000 mA	106 CFM	88 CFM	127Pa	53 dBA	<a href="#">PDF</a>
<a href="#">018729-30</a>	\$173.00	Enclosure fan	G3 filter	115 VAC	38W	330 mA	120 CFM	110 CFM	121Pa	58 dBA	<a href="#">PDF</a>
<a href="#">118720-00</a>	\$42.50	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.



018820-00



118820-30



### Filter Fan Plus - FPO System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018820-00</a>	\$163.00	Enclosure fan	Air flaps	230 VAC	45W	196 mA	155 CFM	81 CFM	143Pa	56 dBA	<a href="#">PDF</a>
<a href="#">018820-40</a>	\$155.00	Enclosure fan	G3 filter	230 VAC	45W	196 mA	106 CFM	71 CFM	121Pa	53 dBA	<a href="#">PDF</a>
<a href="#">018821-00</a>	\$238.00	Enclosure fan	Air flaps	48 VDC	12W	250 mA	163 CFM	86 CFM	146Pa	63 dBA	<a href="#">PDF</a>
<a href="#">018822-00</a>	\$238.00	Enclosure fan	Air flaps	24 VDC	12W	500 mA	158 CFM	83 CFM	138Pa	63 dBA	<a href="#">PDF</a>
<a href="#">018823-00</a>	\$238.00	Enclosure fan	Air flaps	12 VDC	12W	1000 mA	164 CFM	82 CFM	150Pa	53 dBA	<a href="#">PDF</a>
<a href="#">018829-00</a>	\$181.00	Enclosure fan	Air flaps	115 VAC	38W	330 mA	184 CFM	98 CFM	162Pa	60 dBA	<a href="#">PDF</a>
<a href="#">018829-40</a>	\$173.00	Enclosure fan	G3 filter	115 VAC	38W	330 mA	126 CFM	86 CFM	139Pa	53 dBA	<a href="#">PDF</a>
<a href="#">118820-30</a>	\$33.00	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							<a href="#">PDF</a>

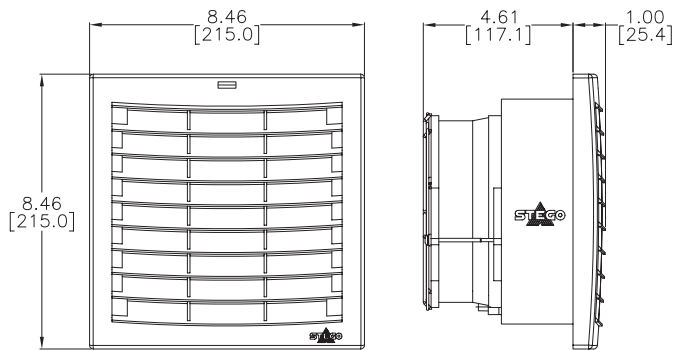
Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.



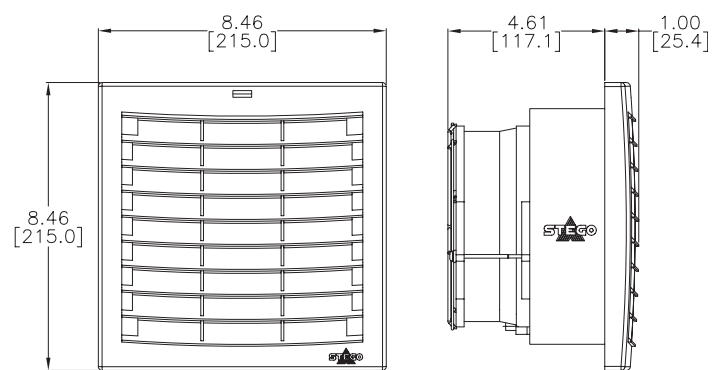
# Filter Fan Plus - Dimensions



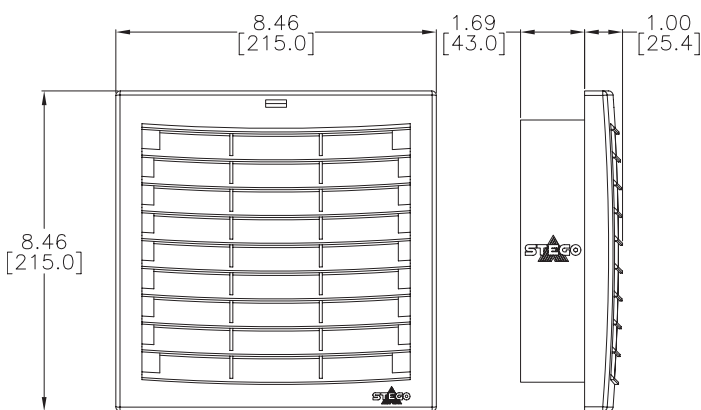
## Dimensions



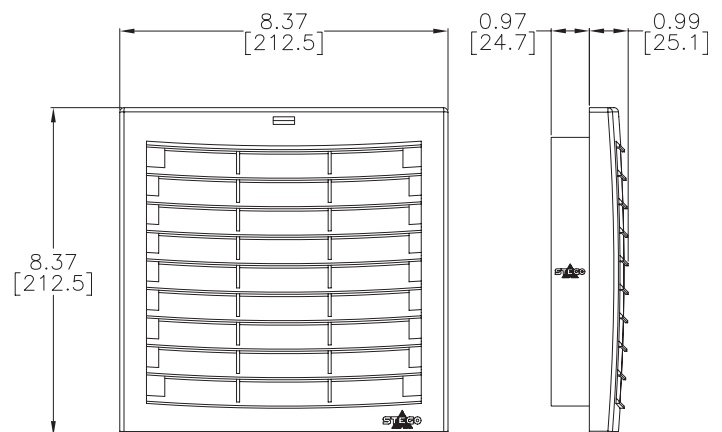
*6.93 x 6.93 in [176 x 176 mm] Cutout Size FPI Fan*



*6.93 x 6.93 in [176 x 176 mm] Cutout Size FPO Fan*



*Exhaust grille for 6.93 x 6.93 in [176 x 176 mm] FPI Fan*



*Intake grille for 6.93 x 6.93 in [176 x 176 mm] FPO Fan*

# Filter Fan Plus



018730-30



118730-00

## 8.78 x 8.78 in [223 x 223mm] Cutout Size

- Storage temperature: -40 to 158°F (-40 to 70°C)
- Operating temperature: -13 to 149°F (-25 to 65°C)
- Connection type: 3-pole clamp for AWG 14 (2.5 mm<sup>2</sup>), clamping torque 7.1 lb-in (0.8 N·m) max
- Service life: 56,000 hrs @ 104°F (40°C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): [086300-00](#) G4 (medium): [086270-00](#) M5 (fine): [086300-00](#)

### Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018730-30</a>	\$198.00	Enclosure fan	G3 filter	230 VAC	64W	278 mA	180 CFM	160 CFM	154Pa	64 dBA	<a href="#">PDF</a>
<a href="#">018739-30</a>	\$207.00	Enclosure fan	G3 filter	115 VAC	81W	704 mA	195 CFM	173 CFM	92Pa	67 dBA	<a href="#">PDF</a>
<a href="#">118730-00</a>	\$56.00	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.



018830-00



118830-30

### Filter Fan Plus - FPO System

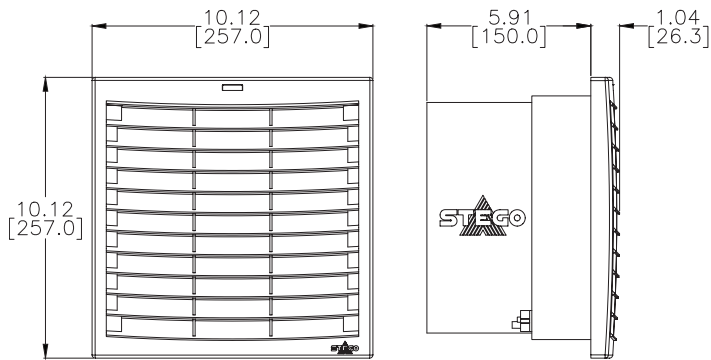
Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018830-00</a>	\$212.00	Enclosure fan	Air flaps	230 VAC	64W	278 mA	316 CFM	165 CFM	172Pa	65 dbA	<a href="#">PDF</a>
<a href="#">018830-40</a>	\$198.00	Enclosure fan	G3 filter	230 VAC	64W	278 mA	177 CFM	134 CFM	154Pa	65 dbA	<a href="#">PDF</a>
<a href="#">018839-00</a>	\$234.00	Enclosure fan	Air flaps	115 VAC	81W	704 mA	342 CFM	182 CFM	103Pa	68 dBA	<a href="#">PDF</a>
<a href="#">018839-40</a>	\$207.00	Enclosure fan	G3 filter	115 VAC	81W	704 mA	191 CFM	148 CFM	92Pa	68 dBA	<a href="#">PDF</a>
<a href="#">118830-30</a>	\$40.50	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

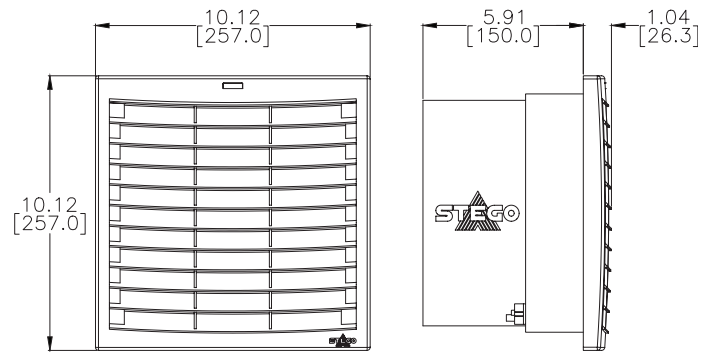
# Filter Fan Plus - Dimensions



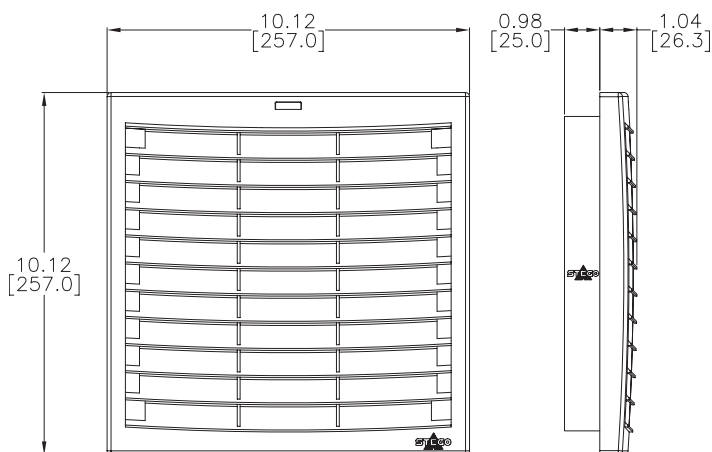
## Dimensions



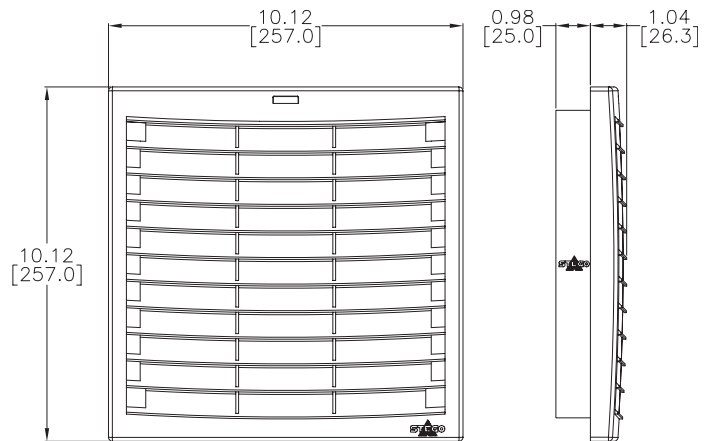
8.78 x 8.78 in [223 x 223mm] Cutout Size FPI Fan



8.78 x 8.78 in [223 x 223mm] Cutout Size FPO Fan



Exhaust grille for 8.78 x 8.78 in [223 x 223mm] FPI Fan



Intake grille for 8.78 x 8.78 in [223 x 223mm] FPO Fan

# Filter Fan Plus



018740-30



118740-00

## 11.46 x 11.46 in [291 x 231mm] Cutout Size

- Storage temperature: -40 to 158°F (-40 to 70°C)
- Operating temperature: -13 to 95°F (-25 to 35°C)
- Connection type: 3-pole clamp for AWG 14 (2.5 mm<sup>2</sup>), clamping torque 7.1 lb-in (0.8 N-m) max
- Service life: 76,000 hrs @ 104°F (40°C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): [086330-00](#) G4 (medium): [086270-00](#) M5 (fine): [086300-00](#)

### Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018740-30</a>	\$266.00	Enclosure fan	G3 filter	230 VAC	95W	413 mA	255 CFM	220 CFM	99Pa	62 dBA	<a href="#">PDF</a>
<a href="#">018740-31</a>	\$330.00	Enclosure fan	G3 filter	230 VAC	140W	700 mA	367 CFM	330 CFM	112Pa	70 dBA	<a href="#">PDF</a>
<a href="#">018749-30</a>	\$290.00	Enclosure fan	G3 filter	115 VAC	90W	783 mA	232 CFM	200 CFM	73Pa	61 dBA	<a href="#">PDF</a>
<a href="#">018749-31</a>	\$351.00	Enclosure fan	G3 filter	115 VAC	165W	1450 mA	391 CFM	349 CFM	135Pa	72 dBA	<a href="#">PDF</a>
<a href="#">118740-00</a>	\$85.00	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.



018840-00



118840-30



### Filter Fan Plus - FPO System

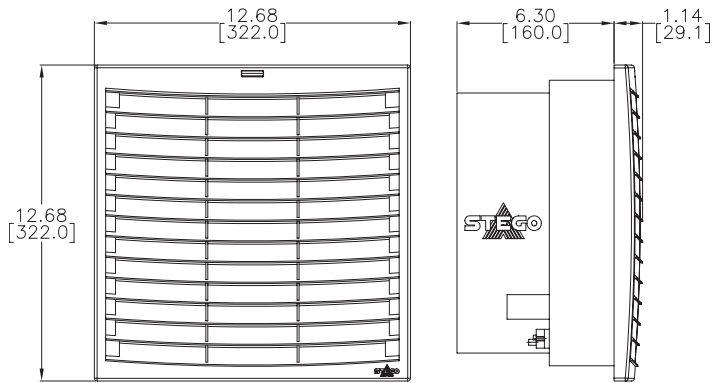
Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
<a href="#">018840-00</a>	\$280.00	Enclosure fan	Air flaps	230 VAC	95W	413 mA	428 CFM	243 CFM	107Pa	63 dBA	<a href="#">PDF</a>
<a href="#">018840-01</a>	\$346.00	Enclosure fan	Air flaps	230 VAC	140W	700 mA	595 CFM	353 CFM	70Pa	70 dBA	<a href="#">PDF</a>
<a href="#">018840-40</a>	\$266.00	Enclosure fan	G3 filter	230 VAC	95W	413 mA	265 CFM	187 CFM	99Pa	63 dBA	<a href="#">PDF</a>
<a href="#">018849-00</a>	\$304.00	Enclosure fan	Air flaps	115 VAC	90W	783 mA	414 CFM	230 CFM	80Pa	62 dBA	<a href="#">PDF</a>
<a href="#">018849-01</a>	\$367.00	Enclosure fan	Air flaps	115 VAC	165W	1450 mA	607 CFM	359 CFM	90Pa	71 dBA	<a href="#">PDF</a>
<a href="#">018849-40</a>	\$290.00	Enclosure fan	G3 filter	115 VAC	90W	783 mA	256 CFM	177 CFM	73Pa	62 dBA	<a href="#">PDF</a>
<a href="#">118840-30</a>	\$66.00	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							<a href="#">PDF</a>

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

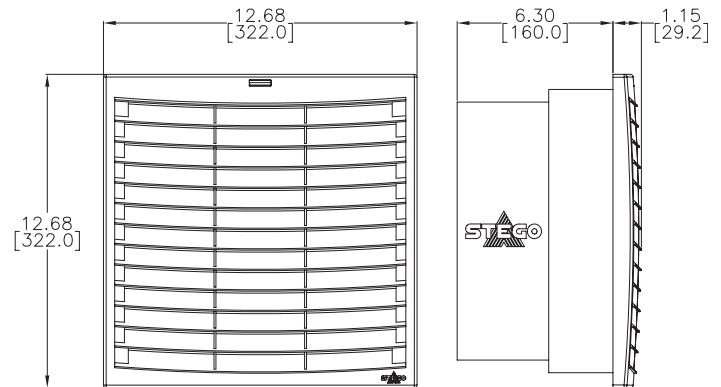
# Filter Fan Plus - Dimensions



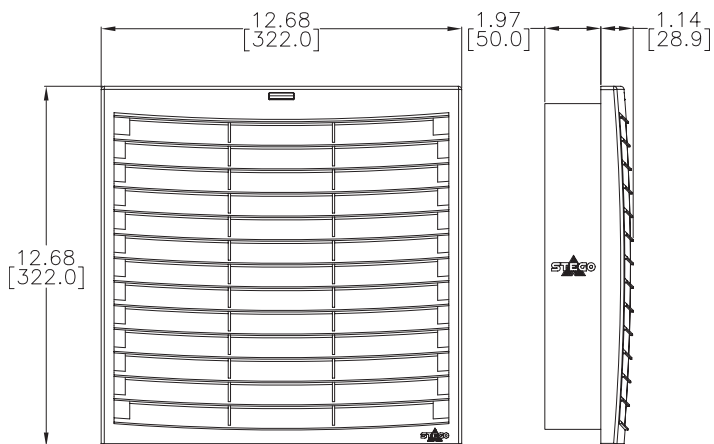
## Dimensions



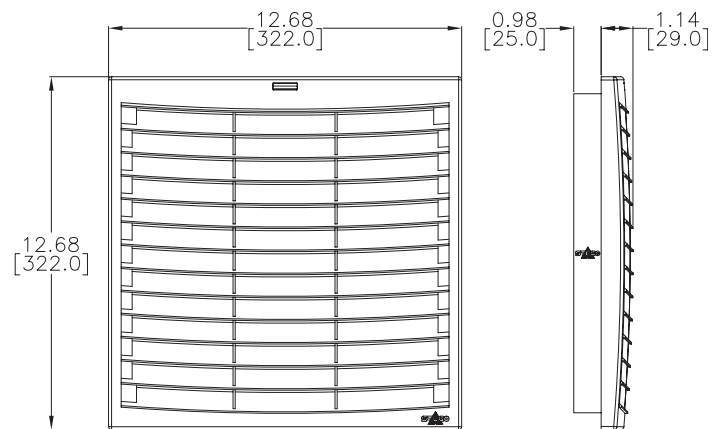
11.46 x 11.46 in [291 x 231mm] Cutout Size FPI Fan



11.46 x 11.46 in [291 x 231mm] Cutout Size FPO Fan



Exhaust grille for 11.46 x 11.46 in [291 x 231mm] FPI Fan



Intake grille for 11.46 x 11.46 in [291 x 231mm] FPO Fan

# Filter Fan



018000-02



## Applications

Filter fans provide an optimum climate in enclosures. The interior temperature of enclosures is reduced by channeling cooler filtered outside air into the enclosure, thus expelling heated internal air. The resulting air flow prevents formation of localized heat pockets and protects electronic components from overheating.

Outdoor filter fans are used in outdoor enclosures where warm air must be dissipated. To clean and exchange the filter mat, you open the lockable door of the outdoor hood, eliminating the need to allow interior access to the enclosure. IP55 protection type is achieved due to the special design of the hood and the use of fine filter mats.

## Features

- Easy filter change
- Outer door lock for outdoor models
- Impact resistant
- Weather/UV-resistant UL-f1
- Flammability Rating: UL 94V-0
- No-screw installation — except outdoor models
- Low noise
- 120VAC and 24VDC models available
- Service life — 50,000 hrs@77°F (25°C) + 65%RH
- Connection type - 12 to 69 CFM - 2 wires w/case clamps, AWG 14, length 4.0in [103mm]/136 to 373 CFM - 3 pole terminal, AWG 14, clamping torque 0.8 N·m
- Airflow direction easily switched by reversing the axial fan (except on models [018040-01](#) and [018050-01](#))
- Includes self-adhesive gasket pre-installed on frame
- Optional mounting screws for additional support
- G3 (coarse), G4 (medium) and M5 (fine) replacement filter mats available

## Standards



- All models: IP54, VDE, EAC, UL 12 when using supplied filter (outdoor models IP55)
- UL recognized — file: E234324

Note: Using fine filter mat M5 reduces the airflow. (No test data available for G3 filter mats. See Stego Air Volume and Pressure Data, later in this section.)

Part Number	Price	Drawing Link	Cutout Dimensions	Operating Voltage	Power Consumption	Current Draw	FreeAirflow	Air Flow with Grille and Filters	Max. Static Pressure	Sound Level	Min/Max Operating Temp.	Included Filter Rating	Average Arrestance
Filter Fans													
<a href="#">018000-01</a>	\$92.00	<a href="#">PDF</a>	3.82 x 3.82	115 VAC	13W	160 mA	14 CFM	11 CFM	18Pa	31 dBA	14/158°F [-10/70°C]	G4 (medium)	94%
<a href="#">018000-02</a>	\$123.00	<a href="#">PDF</a>	[97 x 97]	24 VDC	2.2W	60 mA	12 CFM	9.4 CFM	19Pa				
<a href="#">018010-01</a>	\$103.00	<a href="#">PDF</a>	4.92 x 4.92	115 VAC	15W	180 mA	37 CFM	28 CFM	30Pa	40 dBA			
<a href="#">018010-02</a>	\$137.00	<a href="#">PDF</a>	[125 x 125]	24 VDC	5W	210 mA	32 CFM	25 CFM	32Pa	39 dBA			
<a href="#">018020-01</a>	\$122.00	<a href="#">PDF</a>	6.93 x 6.93	115 VAC	15W	180 mA	69 CFM	46 CFM	27Pa	56 dBA			
<a href="#">018020-02</a>	\$140.00	<a href="#">PDF</a>	[176 x 176]	24 VDC	5W	210 mA	60 CFM	40 CFM	23Pa	53 dBA			
<a href="#">018030-01</a>	\$358.00	<a href="#">PDF</a>	9.84 X 9.84	115 VAC	68W	800 mA	202 CFM	156 CFM	60Pa	52 dBA			
<a href="#">018030-03</a>	\$373.00	<a href="#">PDF</a>	[250 X 250]	24 VDC	20W	840 mA	176 CFM	135 CFM	27Pa	65 dbA			
<a href="#">018040-01</a>	\$211.00	<a href="#">PDF</a>	6.93 X 6.93 [176 X 176]	115 VAC	39W	470 mA	136 CFM	84 CFM	60Pa	52 dBA	-13/140°F [-25/60°C]		
<a href="#">018050-01</a>	\$295.00	<a href="#">PDF</a>	9.84 X 9.84 [250 X 250]		85W	780 mA	372 CFM	203 CFM	85Pa	65 dbA			
Outdoor Filter Fans (Rain Hoods)													
<a href="#">018210-02</a>	\$166.00	<a href="#">PDF</a>	4.92 x 4.92	115 VAC	15W	180 mA	14 CFM	7.1 CFM	54Pa	40 dBA	14/158°F [-10/70°C]	G5 (fine)	98%
<a href="#">018210-04</a>	\$195.00	<a href="#">PDF</a>	[125 x 125]	24 VDC	5W	210 mA	12 CFM	5.9 CFM	48Pa				
Notes: Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz. Free airflow and maximum static pressure are measured with fan and louvered housing only. Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter. Dimensions in inches [millimeters].													

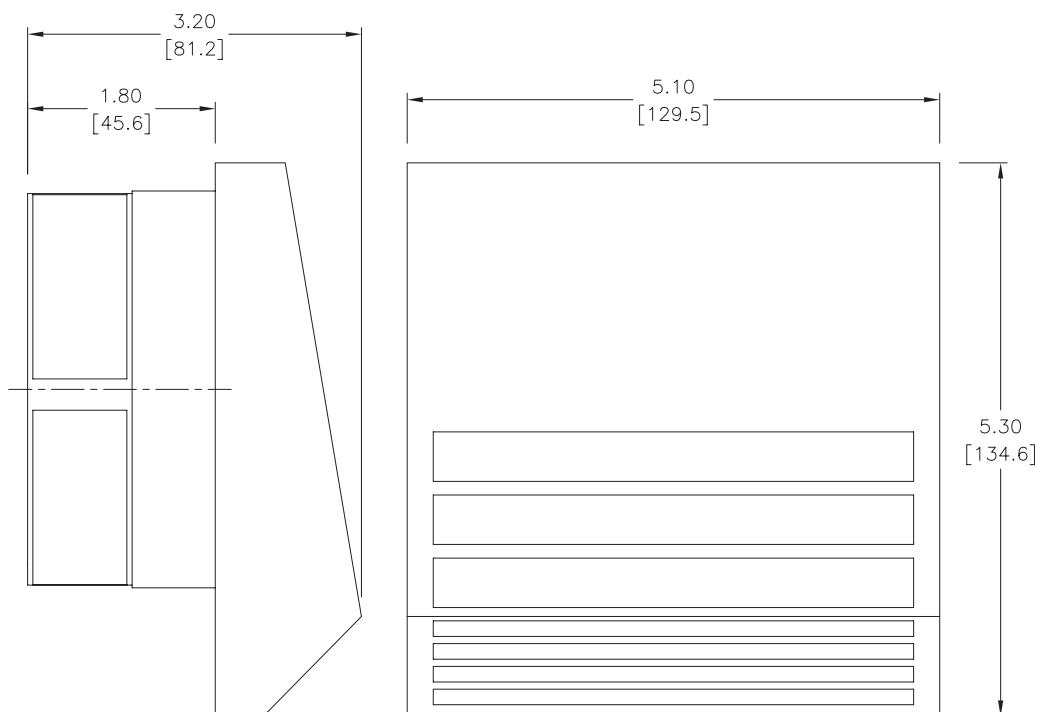


# Filter Fan – Dimensions

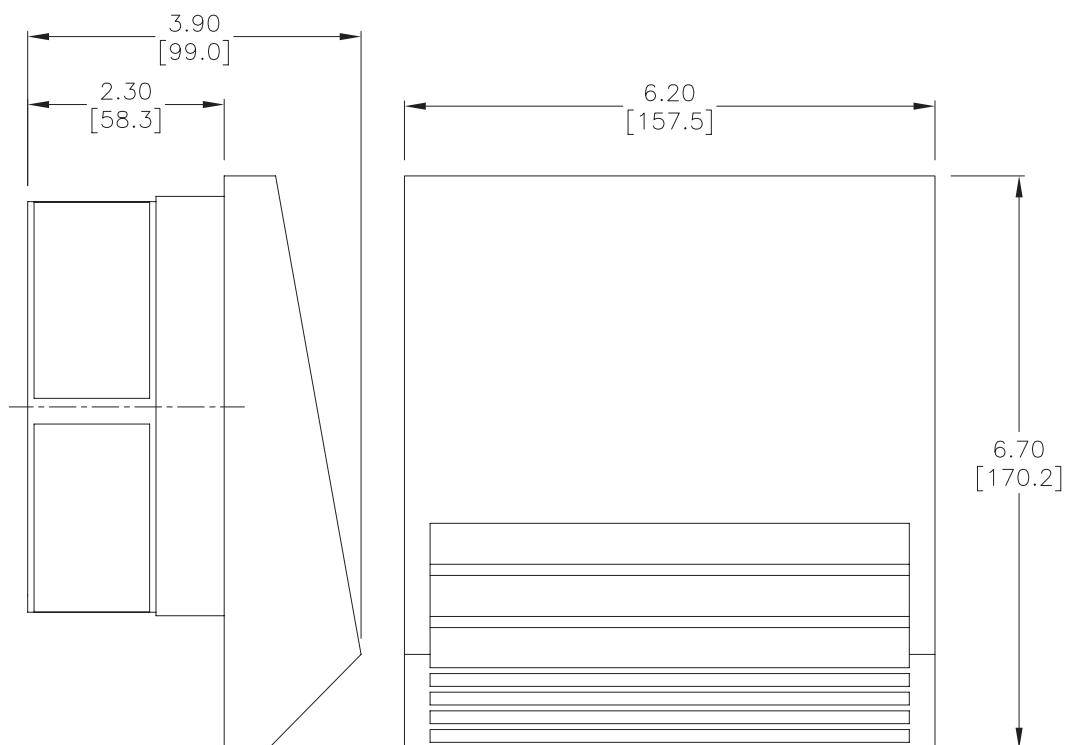


## Dimensions

018000-01  
018000-02



018010-01  
018010-02

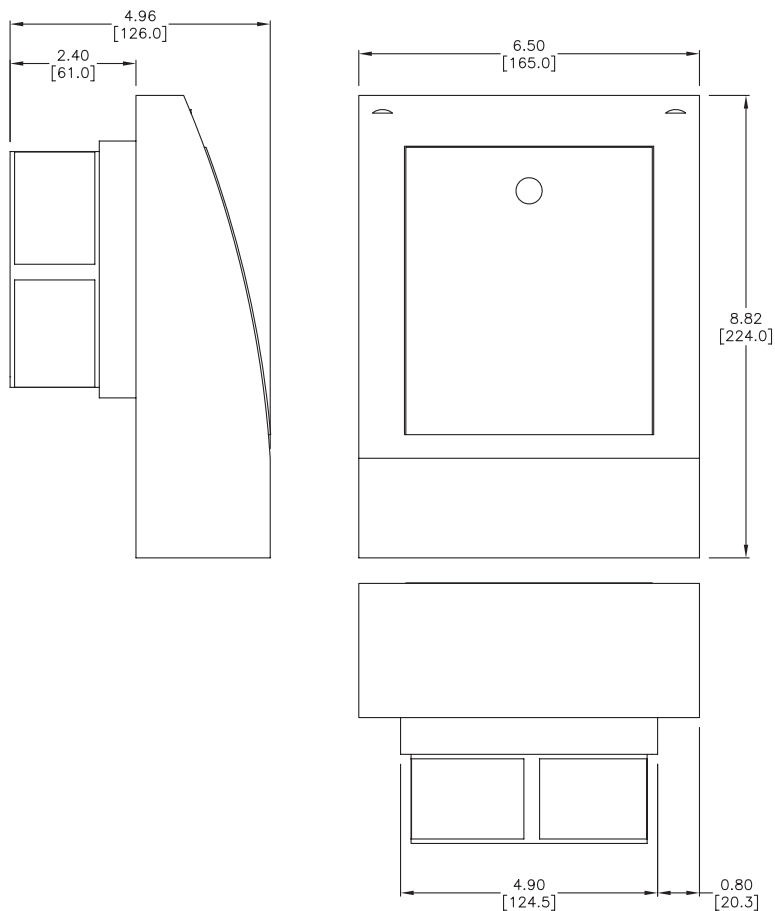


# Filter Fan – Dimensions

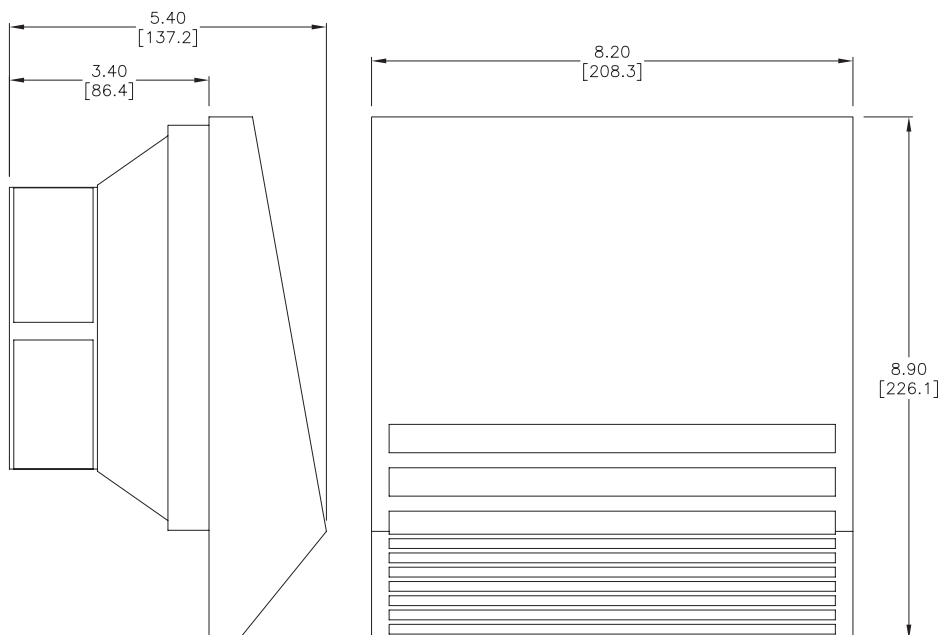


## Dimensions

018210-04  
018210-02



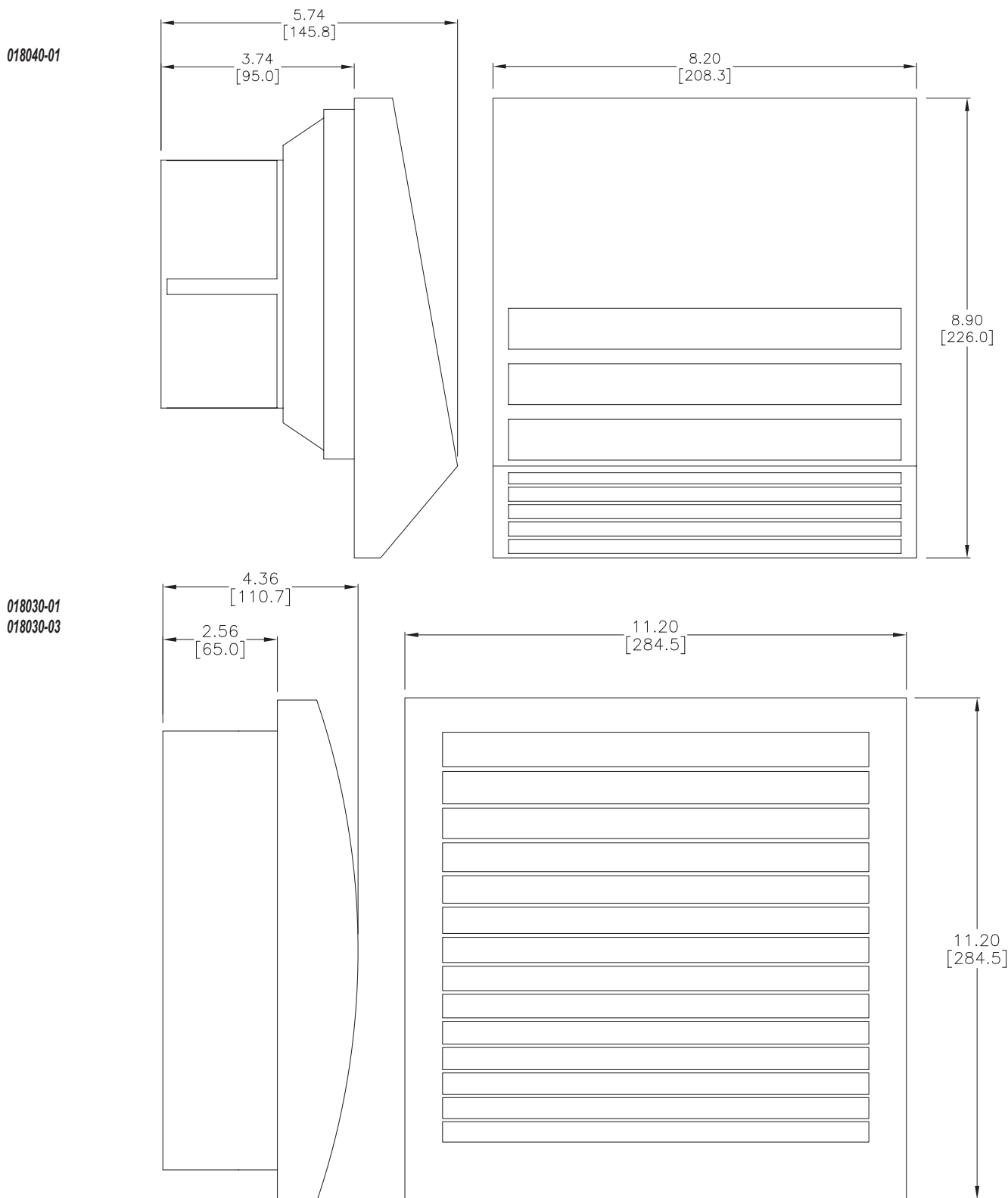
018020-01  
018020-02



# Filter Fan – Dimensions



## Dimensions

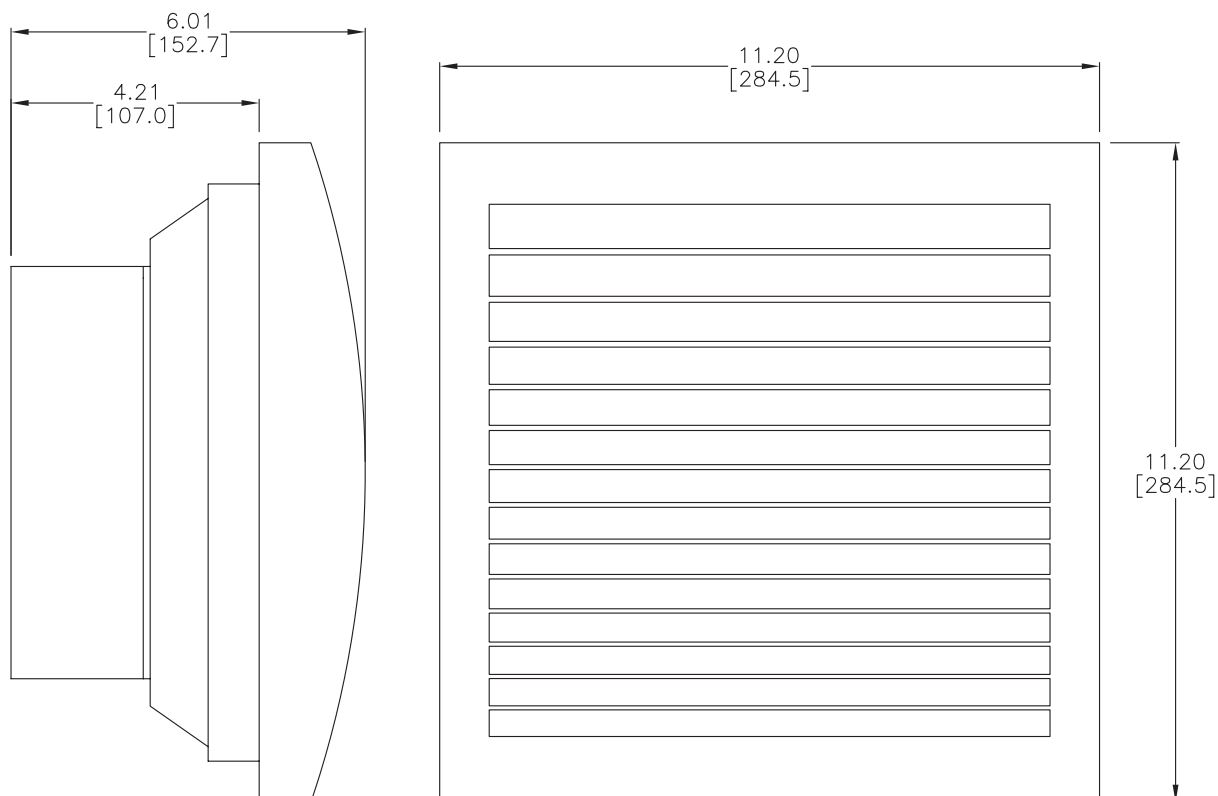


# Filter Fan – Dimensions



## Dimensions

018050-01



# Exhaust Grilles With Filters



118000-00



## Features

- No-screw installation
- G3 (coarse), G4 (medium) and M5 (fine) replacement filter mats available

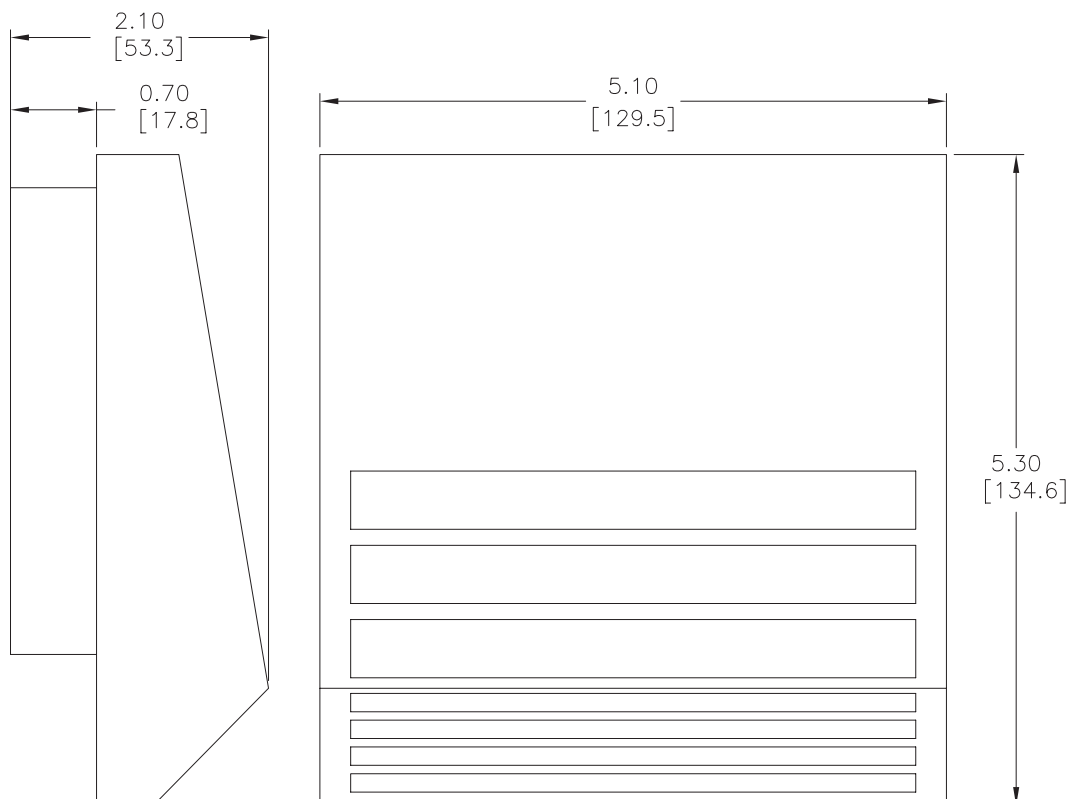
## Accessories

- Come with gaskets attached (adhesive-sided to stick on panel)

Part Number	Price	Drawing Link	Cutout Dimensions	Included Filter Rating	Average Arrestance
Exhaust Grilles					
<a href="#">118000-00</a>	\$21.00	<a href="#">PDF</a>	3.82 x 3.82 [97 x 97]	G4 (medium)	94%
<a href="#">118010-00</a>	\$26.00	<a href="#">PDF</a>	4.92 x 4.92 [125 x 125]		
<a href="#">118020-00</a>	\$31.00	<a href="#">PDF</a>	6.93 x 6.93 [176 x 176]		
<a href="#">118030-00</a>	\$76.00	<a href="#">PDF</a>	9.84 x 9.84 [250 x 250]		
Outdoor Exhaust Grilles					
<a href="#">118210-00</a>	\$121.00	<a href="#">PDF</a>	4.92 x 4.92 [125 x 125]	G5 (fine)	98%
Note: Dimensions in inches (millimeters).					

## Dimensions

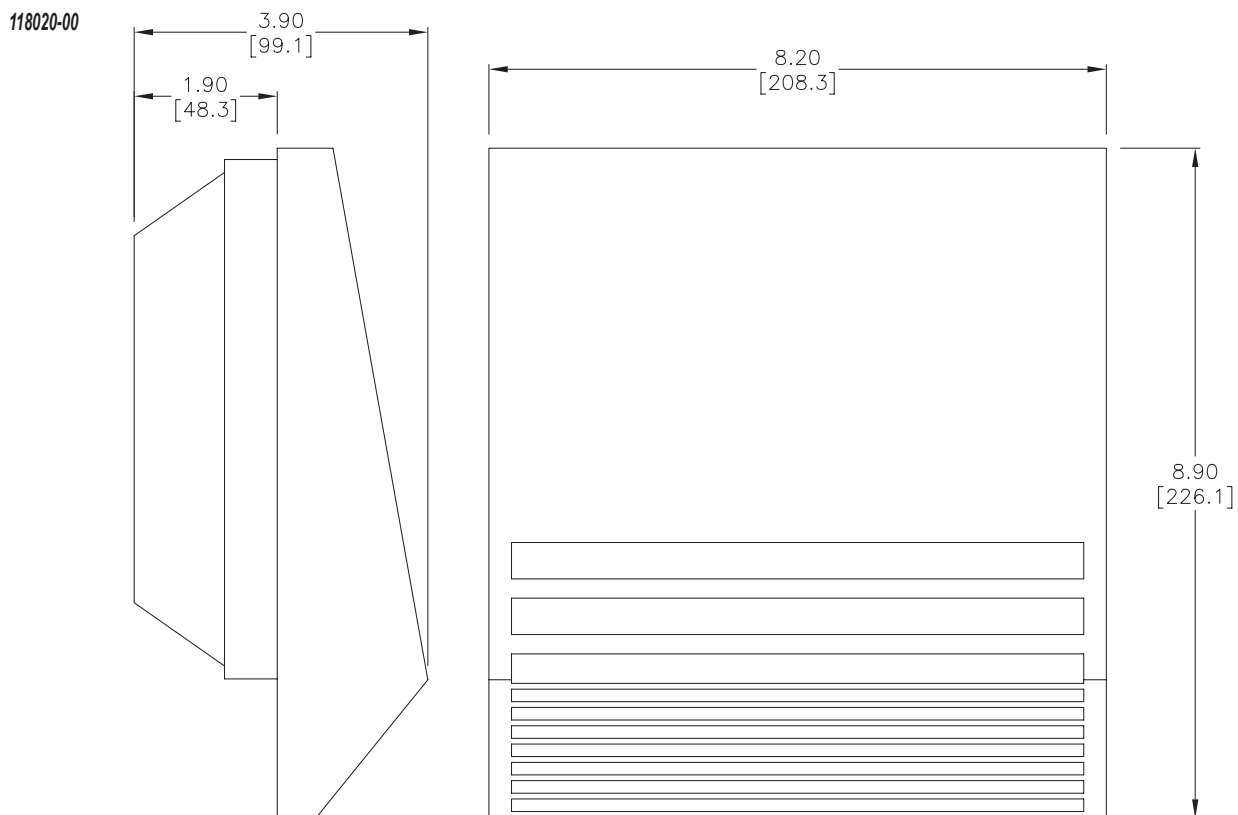
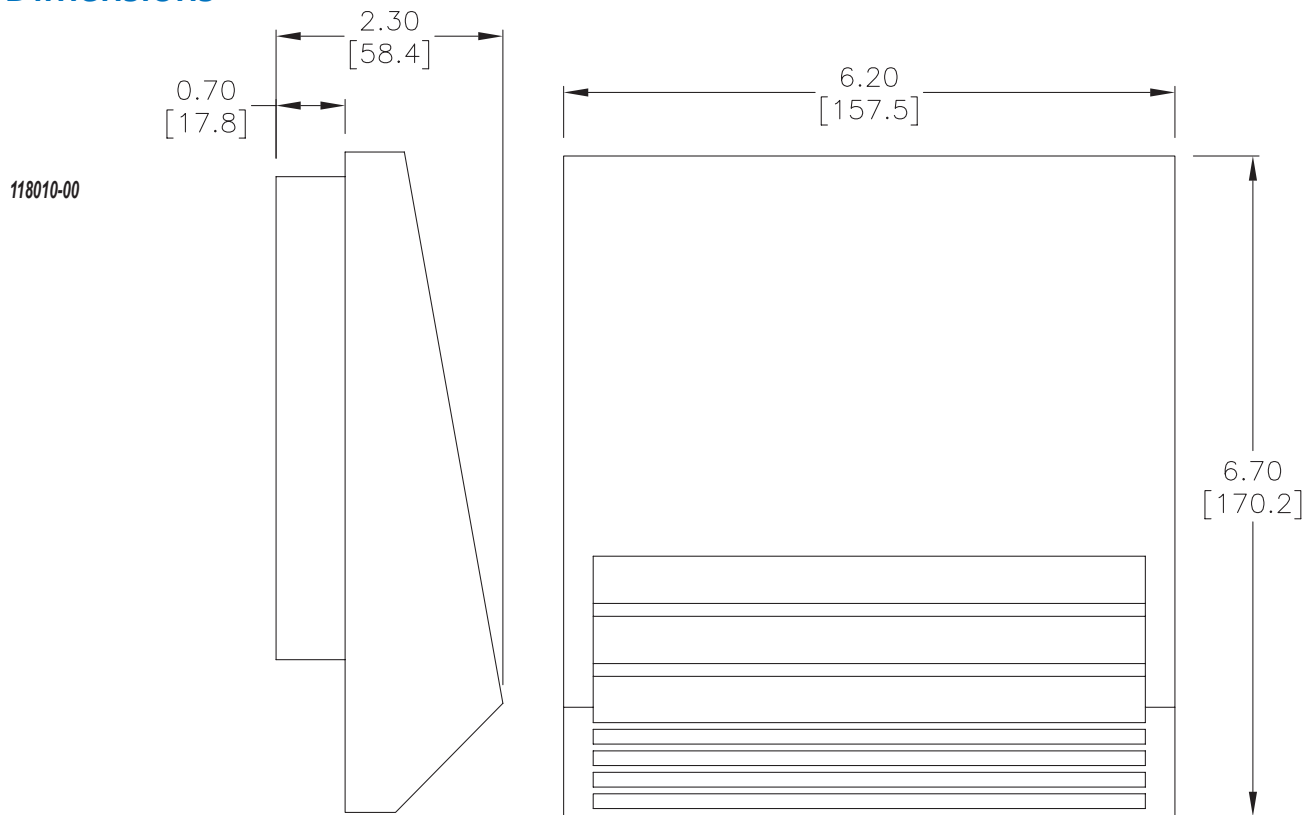
118000-00



# Filter Fan Exhaust Grille Dimensions



## Dimensions

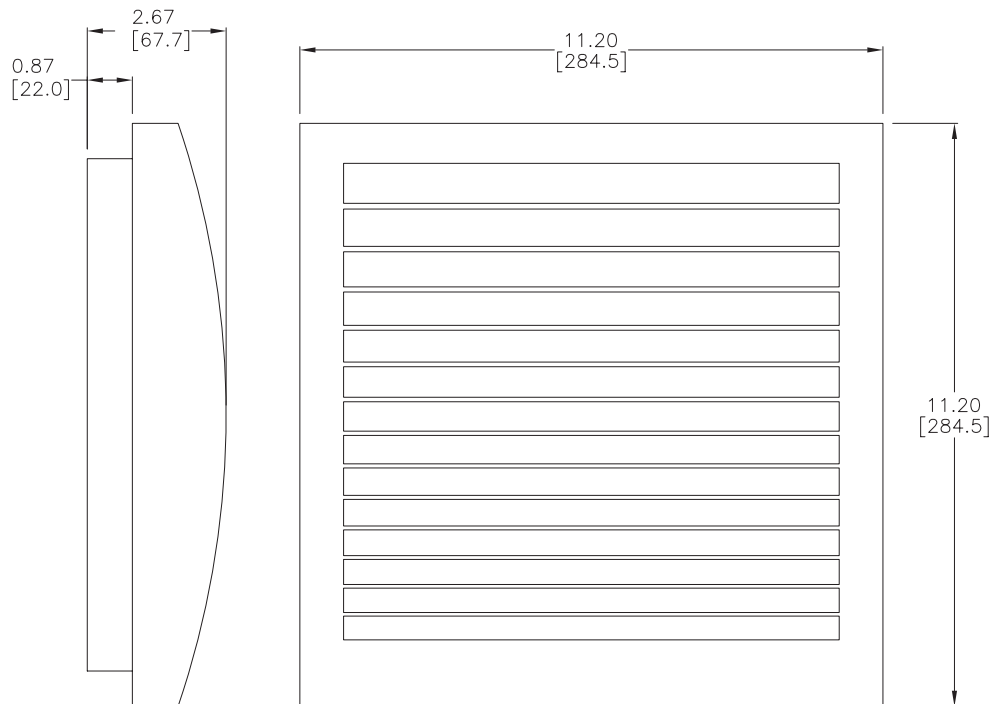
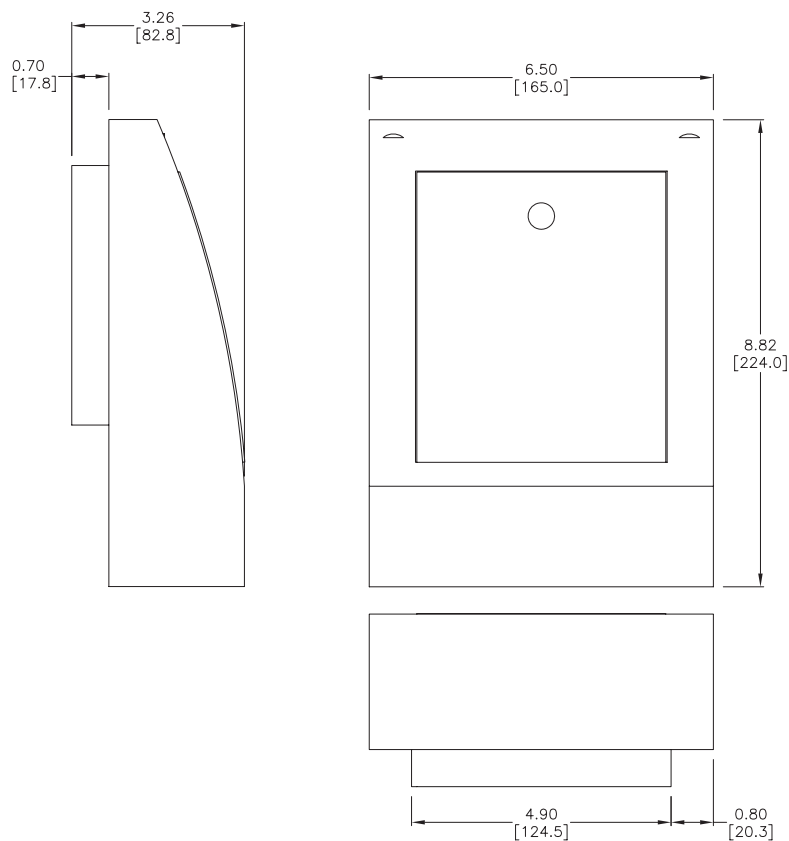




# Filter Fan Exhaust Grille Dimensions



## Dimensions

**118030-00****118210-00**

# Filter Fan Replacement Filter Mats



086000-00

## Filter Mats

- Synthetic fiber with progressive construction
- Temperature resistant to 212°F (100°C)
- Rating: G3 (coarse), G4 (coarse), and M5 (medium)
- Self-extinguishing class F1
- Moisture resistant to 100% RH
- Reusable; can be cleaned with mild soap or vacuum

## Applications

- Replacement filter mats for Stego fans, grilles, and vents.

## Features

- Filter media for enclosure fans
- Coarse or medium density

Replacement Filter Mats								
Part Number	Price	Dimensions HxW in (mm)	Use With Fan Part Number	Use With Grille or Vent Part Number	Filter Rating	Average Arrestance (Filtering Level)	Filter Density g/m2	Pieces per Package
<a href="#"><u>086130-01</u></a>	\$9.00	11.10 X 11.10 [282 X 282]	<a href="#"><u>018600-02</u></a> <a href="#"><u>018600-04</u></a> <a href="#"><u>018610-00</u></a> <a href="#"><u>018610-02</u></a>	<a href="#"><u>118600-00</u></a> <a href="#"><u>018600-02</u></a> <a href="#"><u>018600-04</u></a> <a href="#"><u>018610-00</u></a> <a href="#"><u>018610-02</u></a>	G3 (coarse)	85%	350 g/m2	3
<a href="#"><u>086330-00</u></a>	\$10.25	3.31 x 3.31 [84 x 84]	<a href="#"><u>018700-30</u></a> <a href="#"><u>018701-30</u></a> <a href="#"><u>018702-30</u></a> <a href="#"><u>018703-30</u></a> <a href="#"><u>018709-30</u></a> <a href="#"><u>018800-40</u></a> <a href="#"><u>018809-40</u></a>	<a href="#"><u>118800-30</u></a>		84%	200 g/m2	5
<a href="#"><u>086340-00</u></a>	\$13.75	4.64 x 4.64 [118 x 118]	<a href="#"><u>018010-01</u></a> <a href="#"><u>018010-02</u></a> <a href="#"><u>018210-02</u></a> <a href="#"><u>018210-04</u></a> <a href="#"><u>018710-30</u></a> <a href="#"><u>018711-30</u></a> <a href="#"><u>018712-30</u></a> <a href="#"><u>018713-30</u></a> <a href="#"><u>018719-30</u></a> <a href="#"><u>018810-40</u></a> <a href="#"><u>018819-40</u></a>	<a href="#"><u>118010-00</u></a> <a href="#"><u>118210-00</u></a> <a href="#"><u>118810-30</u></a>				
<a href="#"><u>086350-00</u></a>	\$18.00	6.61 x 6.61 [168 x 168]	<a href="#"><u>018020-01</u></a> <a href="#"><u>018020-02</u></a> <a href="#"><u>018040-01</u></a> <a href="#"><u>018720-30</u></a> <a href="#"><u>018721-30</u></a> <a href="#"><u>018722-30</u></a> <a href="#"><u>018723-30</u></a> <a href="#"><u>018729-30</u></a> <a href="#"><u>018820-40</u></a> <a href="#"><u>018829-40</u></a>	<a href="#"><u>118020-00</u></a> <a href="#"><u>118820-30</u></a>				
<a href="#"><u>086360-00</u></a>	\$23.50	8.46 x 8.46 [215 x 215]	<a href="#"><u>018730-30</u></a> <a href="#"><u>018830-40</u></a> <a href="#"><u>018839-40</u></a>	<a href="#"><u>118830-30</u></a>				
<a href="#"><u>086370-00</u></a>	\$31.00	11.14 x 11.14 [283 x 283]	<a href="#"><u>018740-30</u></a> <a href="#"><u>018749-30</u></a> <a href="#"><u>018840-40</u></a> <a href="#"><u>018849-40</u></a>	<a href="#"><u>118840-30</u></a>				
Note: Dimensions in inches [millimeters].								

# Filter Fan Replacement Filter Mats



Replacement Filter Mats								
Part Number	Price	Dimensions HxW in (mm)	Use With Fan Part Number	Use With Grille or Vent Part Number	Filter Rating	Average Arrestance (Filtering Level)	Filter Density g/m2	Pieces per Package
<a href="#"><u>086000-00</u></a>	\$7.50	3.50 x 3.50 [89 x 89]	<a href="#"><u>018700-30</u></a> <a href="#"><u>018701-30</u></a> <a href="#"><u>018702-30</u></a> <a href="#"><u>018703-30</u></a> <a href="#"><u>018709-30</u></a> <a href="#"><u>018800-40</u></a> <a href="#"><u>018809-40</u></a>	<a href="#"><u>118800-30</u></a>	G4 (coarse)	94%	350 g/m2	3
<a href="#"><u>086010-00</u></a>	\$9.25	4.65 x 4.65 [118 x 118]	<a href="#"><u>018000-01</u></a> <a href="#"><u>018000-02</u></a>	<a href="#"><u>118000-00</u></a>				
<a href="#"><u>086020-00</u></a>	\$11.50	6.61 x 6.61 [168 x 168]	<a href="#"><u>018010-01</u></a> <a href="#"><u>018010-02</u></a> <a href="#"><u>018210-02</u></a> <a href="#"><u>018210-04</u></a> <a href="#"><u>018710-30</u></a> <a href="#"><u>018711-30</u></a> <a href="#"><u>018712-30</u></a> <a href="#"><u>018713-30</u></a> <a href="#"><u>018719-30</u></a> <a href="#"><u>018810-40</u></a> <a href="#"><u>018819-40</u></a>	<a href="#"><u>118010-00</u></a> <a href="#"><u>118210-00</u></a> <a href="#"><u>118810-30</u></a>				
<a href="#"><u>086030-00</u></a>	\$8.75	3.50 x 3.50 [89 x 89]	<a href="#"><u>018020-01</u></a> <a href="#"><u>018020-02</u></a> <a href="#"><u>018040-01</u></a> <a href="#"><u>018720-30</u></a> <a href="#"><u>018721-30</u></a> <a href="#"><u>018722-30</u></a> <a href="#"><u>018723-30</u></a> <a href="#"><u>018729-30</u></a> <a href="#"><u>018829-40</u></a> <a href="#"><u>018829-40</u></a>	<a href="#"><u>118020-00</u></a> <a href="#"><u>118820-30</u></a>				
<a href="#"><u>086040-00</u></a>	\$11.25	4.65 x 4.65 [118 x 118]	<a href="#"><u>018730-30</u></a> <a href="#"><u>018739-30</u></a> <a href="#"><u>018830-40</u></a> <a href="#"><u>018839-40</u></a>	<a href="#"><u>118830-30</u></a>				
<a href="#"><u>086050-00</u></a>	\$16.50	6.61 x 6.61 [168 x 168]	<a href="#"><u>018030-01</u></a> <a href="#"><u>018030-03</u></a> <a href="#"><u>018050-01</u></a>	<a href="#"><u>118030-00</u></a>				
<a href="#"><u>086080-00</u></a>	\$28.50	9.72 x 9.72 [247 x 247]	<a href="#"><u>018740-30</u></a> <a href="#"><u>018749-30</u></a> <a href="#"><u>018840-40</u></a> <a href="#"><u>018849-40</u></a>	<a href="#"><u>118840-30</u></a>				
<a href="#"><u>086090-00</u></a>	\$35.00	9.72 x 9.72 [247 x 247]	<a href="#"><u>018700-30</u></a> <a href="#"><u>018701-30</u></a> <a href="#"><u>018702-30</u></a> <a href="#"><u>018703-30</u></a> <a href="#"><u>018709-30</u></a> <a href="#"><u>018800-40</u></a> <a href="#"><u>018809-40</u></a>	<a href="#"><u>118800-30</u></a>	M5 (medium))	98%	350 g/m2	3
<a href="#"><u>086270-00</u></a>	\$8.75	3.31 x 3.31 [84 x 84]	<a href="#"><u>018000-01</u></a> <a href="#"><u>018000-02</u></a>	<a href="#"><u>118000-00</u></a>	M5 (medium))	98%		
Note: Dimensions in inches [millimeters].								

# Filter Fan Replacement Filter Mats



Replacement Filter Mats								
Part Number	Price	Dimensions HxW in (mm)	Use With Fan Part Number	Use With Grille or Vent Part Number	Filter Rating	Average Arrestance (Filtering Level)	Filter Density g/m2	Pieces per Package
<a href="#"><u>086280-00</u></a>	\$16.00	8.46 x 8.46 [215 x 215]	<a href="#"><u>018010-01</u></a> <a href="#"><u>018010-02</u></a> <a href="#"><u>018210-02</u></a> <a href="#"><u>018210-04</u></a> <a href="#"><u>018710-30</u></a> <a href="#"><u>018711-30</u></a> <a href="#"><u>018712-30</u></a> <a href="#"><u>018713-30</u></a> <a href="#"><u>018719-30</u></a> <a href="#"><u>018810-40</u></a> <a href="#"><u>018819-40</u></a>	<a href="#"><u>118010-00</u></a> <a href="#"><u>118210-00</u></a> <a href="#"><u>118810-30</u></a>	M5 (medium))	98%	350 g/m2	3
<a href="#"><u>086290-00</u></a>	\$22.00	11.14 x 11.14 [283 x 283]	<a href="#"><u>018020-01</u></a> <a href="#"><u>018020-02</u></a> <a href="#"><u>018040-01</u></a> <a href="#"><u>018720-30</u></a> <a href="#"><u>018721-30</u></a> <a href="#"><u>018722-30</u></a> <a href="#"><u>018723-30</u></a> <a href="#"><u>018729-30</u></a> <a href="#"><u>018820-40</u></a> <a href="#"><u>018829-40</u></a>	<a href="#"><u>118020-00</u></a> <a href="#"><u>118820-30</u></a>				
<a href="#"><u>086300-00</u></a>	\$8.75	3.31 x 3.31 [84 x 84]	<a href="#"><u>018740-30</u></a> <a href="#"><u>018730-30</u></a> <a href="#"><u>018739-30</u></a> <a href="#"><u>018830-40</u></a> <a href="#"><u>018839-40</u></a>	<a href="#"><u>118840-30</u></a>	M5 (medium))	98%	360 g/m2	3
<a href="#"><u>086310-00</u></a>	\$16.00	8.46 x 8.46 [215 x 215]	<a href="#"><u>018030-01</u></a> <a href="#"><u>018030-03</u></a> <a href="#"><u>018050-01</u></a>	<a href="#"><u>118030-00</u></a>				
<a href="#"><u>086320-00</u></a>	\$22.00	11.14 x 11.14 [283 x 283]	<a href="#"><u>018740-30</u></a> <a href="#"><u>018749-30</u></a> <a href="#"><u>018840-40</u></a> <a href="#"><u>018849-40</u></a>	<a href="#"><u>118840-30</u></a>				
Note: Dimensions in inches [millimeters].								

# Air Volume and Pressure Data for Upgraded Filter Mats



Airflow and Pressure Data						
Fan Part Number	Filter Mat Airflow (cfm)				Filter Mat Static Pressure (Pa)	
	G4 fan filter*	G4 fan filter and exhaust filter**	M5 fan filter free flow*	M5 fan filter with exhaust filter**	G4 fan filter free flow*	M5 fan filter*
<a href="#">018000-02</a>	—	9	4	3	—	37
<a href="#">018000-01</a>	—	11	5	4	—	35
<a href="#">018010-02</a>	—	25	16	13	—	53
<a href="#">018010-01</a>	—	28	19	15	—	50
<a href="#">018020-02</a>	—	40	31	21	—	30
<a href="#">018020-01</a>	—	46	36	24	—	35
<a href="#">018040-01</a>	—	84	58	36	—	100
<a href="#">018030-03</a>	—	135	47	36	—	46
<a href="#">018030-01</a>	—	156	54	42	—	54
<a href="#">018050-01</a>	—	203	145	83	—	140
<a href="#">018700-30</a>	9.4	7.1	4.1	3.5	48	48
<a href="#">018800-00</a>	14	7.7	14	4.1	48	48
<a href="#">018800-40</a>	11	7.7	11	4.7	48	48
<a href="#">018710-30</a>	28	25	14	12	76	76
<a href="#">018810-00</a>	57	26	57	12	76	76
<a href="#">018810-40</a>	33	24	33	12	76	76
<a href="#">018809-40</a>	83	74	48	41	140	140
<a href="#">018720-30</a>	155	74	155	40	140	140
<a href="#">018820-00</a>	106	66	106	38	140	140
<a href="#">018820-40</a>	147	130	70	62	132	132
<a href="#">018730-30</a>	316	140	316	74	136	136
<a href="#">018830-00</a>	183	121	183	68	132	132
<a href="#">018830-40</a>	250	212	118	94	107	107
<a href="#">018740-30</a>	428	218	428	109	117	117
<a href="#">018840-00</a>	300	153	300	100	107	107
Notes: *Fan with filter and louver **Fan with filter, louver, exhaust filter, and grille. Part numbers not listed in this table have no test data available.						

# Hose-Proof Hood for Stego Fans



## Features

- Stainless steel hood
- Food-safe silicone seal
- Increase of protection class to UL Type 4X
- Easy to clean
- Filter mat change from outside
- Impact-resistant
- Optional security feature to restrict unauthorized access (M6x1 security screw included)
- Weather resistant
- Versatile
- Protective grid
- Mounting screws provided

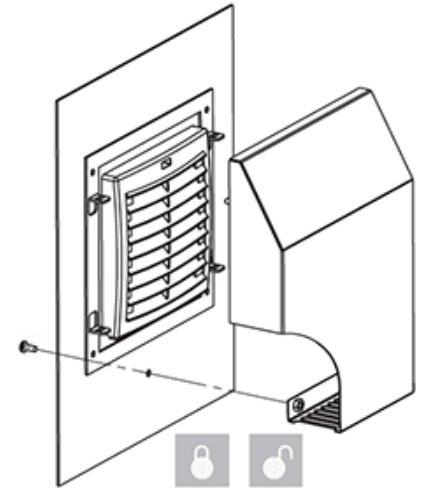
## Standards

- UL 4/4X when used with STEGO Filter Fan Plus and Filter Fans
- UL Recognized File No. E234324
- RoHS 2 compliant
- IP56



## Applications

- Designed to increase the protection class and serve as a protective cover to filter fans, intake and exit filters
- Used for protection against water projected by a hose and extreme climatic influences if located outdoors in industrial applications with harsh environmental conditions
- Hood removes easily for cleaning and filter change without opening the enclosure



Hose-Proof Hood Locking Mechanism

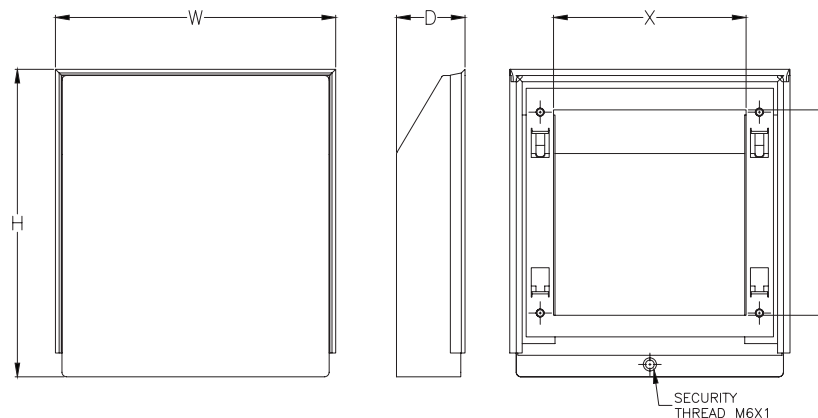
## Hose-Proof Hood for Stego Fans

Part Number	Price	Stego Filter Fan Plus FPI/FPO Cutout Size	Stego Filter Fan Cutout Size	Dimensions (H x W x D)	Max. Covered Area (X x Y)	Weight (lb)
<a href="#">086700-00</a>	\$156.00	3.62 x 3.62 [92 x 92]	3.82 x 3.82 [97 x 97]	8.42 x 7.67 x 1.88 [214 x 195 x 48]	5.27 x 5.63 [134 x 143]	1.76
<a href="#">086710-00</a>	\$189.00	4.88 x 4.88 [124 x 124]	4.92 x 4.92 [125 x 125]	11.00 x 8.92 x 2.39 [280 x 226 x 61]	6.39 x 6.75 [162 x 171]	2.64
<a href="#">086720-00</a>	\$225.00	6.93 x 6.93 [176 x 176]	6.93 x 6.93 [176 x 176]	14.01 x 11.44 x 2.68 [356 x 291 x 68]	9.19 x 9.19 [233 x 233]	4.40
<a href="#">086730-00</a>	\$282.00	8.78 x 8.78 [223 x 223]	9.84 x 9.84 [250 x 250]	16.19 x 14.5 x 3.07 [411 x 388 x 78]	11.69 x 11.31 [297 x 287]	6.17
<a href="#">086740-00</a>	\$354.00	11.46 x 11.46 in [2391 x 231 mm]	—	18.94 x 15.96 x 4.05 [481 x 405 x 103]	13.25 x 13.31 [337 x 338]	8.15

Notes: Dimensions in inches [millimeters].

None of the above models fit [018210-04](#) and [018210-02](#) outdoor filter fans.

## Dimensions

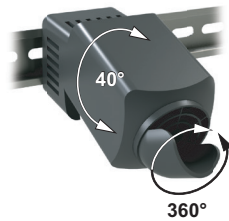
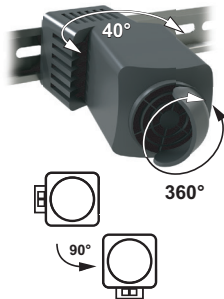




# STEGOJET Compact Fans



019250-00



Range of Rotation

## Applications

The STEGOJET is a compact, powerful built-in fan. It is designed for precise cooling of heat sources and for maximum rotation range with an air output in almost any direction. The dual clip system (two clips at a 90° angle) allows four different positions on a DIN rail, while the hinge in the housing can be moved at a 40° angle. Additionally, the airflow at the air outlet can be directed at a 45° angle and the air duct can be turned 360°.

## Features

- Prevents heat pockets
- Wide voltage range
- Compact design
- Quick connection
- Panel or DIN rail mounting

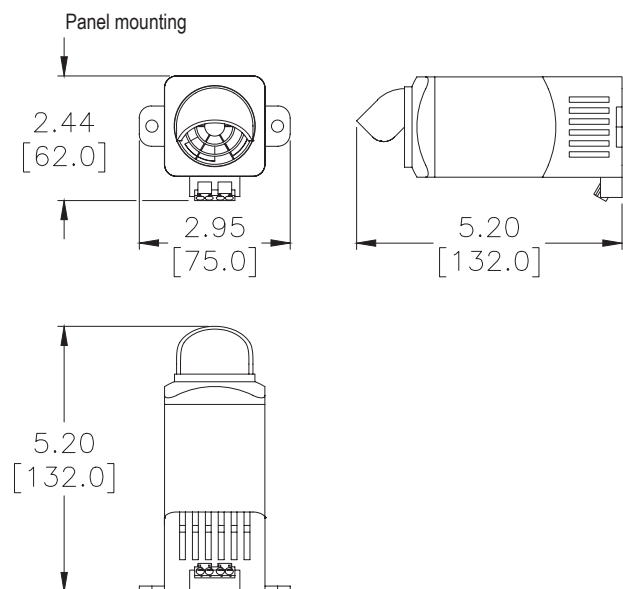
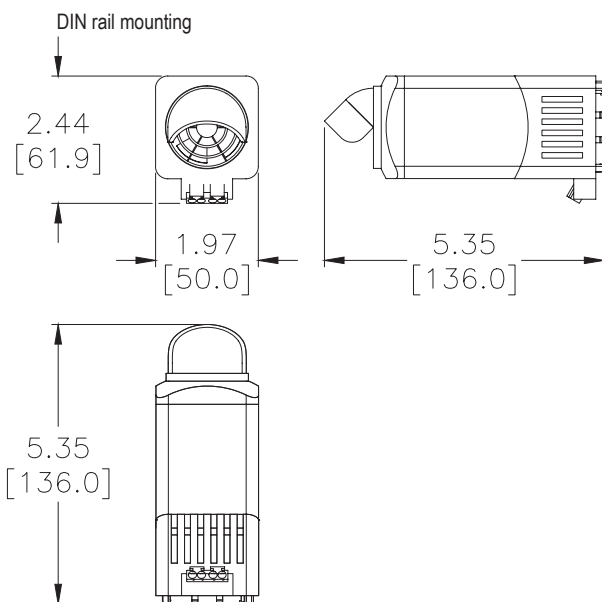


## StegoJet Fan Specifications

<b>Axial Fan, Ball Bearing</b>	Service life 40,000h at 140°F (60°C) and 90% RH
<b>Power Consumption</b>	4W
<b>Connection</b>	2-pole dual cage clamp for solid wire – 14AWG (2.5 mm <sup>2</sup> ) stranded wire (with wire end ferrule) – 16AWG (1.5 mm <sup>2</sup> )
<b>Housing</b>	Plastic, UL 94V-0, black
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715 or M5 screws and washers (not included) – torque 2 N·m max.
<b>Mounting Position</b>	Variable
<b>Operating/Storage Temperature</b>	+14° to +140°F (-10° to +60°C) / -22° to +158°F (-30° to 70°C)
<b>Operating/Storage Humidity</b>	Max. 90% RH (non-condensing)
<b>Protection Class</b>	II (double insulated)
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, UL Recognized File No. E234324, RoHS compliant

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

## Dimensions



Part Number	Price	Description	Operating Voltage	Air Flow, Free Blowing	Weight (approx.)
<a href="#">019250-00</a>	\$104.00	DIN rail mounting	100-240V AC, 50/60 Hz (min. 90VAC, max. 265VAC)	16.2 cfm (27.6 m <sup>3</sup> /h)	7oz (198g)
<a href="#">019250-01</a>	\$104.00	Panel mounting			

# Seifert Fan Hoods



## Features

- Protects fan and exhaust vents from environmental hazards.
- Screw-less mounting and removal of the hood.
- Easy to clean.
- Mounting screws torque: 40 lb-in / 4.5 Nm.
- cULus Recognized File E498756.
- IP56



## Stainless Steel Hood

- 304 stainless steel
- Blue Food Safe Gasket
- UL Type 1,2,3,3X,3R,3RX,3S,3SX,5,12,12K and 13



Seifert Stainless Steel Fan Hood				
Part Number	Price	Max Cutout Size	Max Covered Area	Drawing Link
<a href="#">400000020</a>	\$130.00	3.62 x 3.62 [91.95 x 91.95]	4.19 x 4.19 [106.43 x 106.43]	<a href="#">PDF</a>
<a href="#">400010020</a>	\$144.00	4.92 x 4.92 [124.97 x 124.97]	5.91 x 5.91 [150.11 x 150.11]	<a href="#">PDF</a>
<a href="#">400020020</a>	\$176.00	6.97 x 6.97 [177.04 x 177.04]	8.03 x 8.03 [203.96 x 203.96]	<a href="#">PDF</a>
<a href="#">400030020</a>	\$206.00	8.78 x 8.78 [223.01 x 223.01]	9.84 x 9.84 [249.94 x 249.94]	<a href="#">PDF</a>
<a href="#">400040020</a>	\$229.00	11.46 x 11.46 [291.08 x 291.08]	12.80 x 12.80 [325.12 x 325.12]	<a href="#">PDF</a>

NOTE: Dimensions listed as inches [millimeters]

## Carbon Steel Hood

- Carbon steel, powder coated RAL 7035 light gray
- UL Type 1,2,5,12,12K and 13



Seifert Carbon Steel Fan Hood				
Part Number	Price	Max Cutout Size	Max Covered Area	Drawing Link
<a href="#">4000000200</a>	\$88.00	3.62 x 3.62 [91.95 x 91.95]	4.19 x 4.19 [106.43 x 106.43]	<a href="#">PDF</a>
<a href="#">4000100200</a>	\$103.00	4.92 x 4.92 [124.97 x 124.97]	5.91 x 5.91 [150.11 x 150.11]	<a href="#">PDF</a>
<a href="#">4000200200</a>	\$128.00	6.97 x 6.97 [177.04 x 177.04]	8.03 x 8.03 [203.96 x 203.96]	<a href="#">PDF</a>
<a href="#">4000300200</a>	\$144.00	8.78 x 8.78 [223.01 x 223.01]	9.84 x 9.84 [249.94 x 249.94]	<a href="#">PDF</a>
<a href="#">4000400200</a>	\$168.00	11.46 x 11.46 [291.08 x 291.08]	12.80 x 12.80 [325.12 x 325.12]	<a href="#">PDF</a>

NOTE: Dimensions listed as inches [millimeters]

# Enclosure Air Conditioners



## Applications

Designed to maintain the temperature inside an electrical enclosure at or below a safe level for the enclosed equipment, while maintaining a closed loop environment inside the enclosure to keep out contaminants that can be in the ambient air. Can be used in environments such as steel, food processing, petrochemical, cement, paper/pulp and plastics industries, provided there are no corrosive gases or liquids that could damage internal components.

## Construction

- Free-standing rigid chassis for easy installation and maintenance
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models
- All Type 4 and 4X models come with condenser coils coated with an electrically applied corrosion-resistant coating

## Features

- Programmable temperature controller with visible alarm features in a 0.57 x 0.29in [14.5 x 7.3 mm] panel
- 70°F to 95°F (20°C to 35°C) temperature control range
- 50°F to 125°F (10°C to 52°C) ambient temperature range
- Pre-wired for external alarm monitoring connections (22 AWG three-conductor cable, 7 ft (2.3 m) long)
- Active condensate evaporation system with safety overflow
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance
- Thermal expansion valve for maximum efficiency over wide range of temperatures and loads
- Anti short-cycle compressor protection
- High and low refrigerant cut-outs with fault indication
- Highly energy-efficient compressors
- UL/cUL listed



TA10-060-26-12 shown

### Stratus Air Conditioners General Specifications

Part Number	Nominal Cooling Capacity	Operating Voltage	Inrush Current (A)	Running Current (A)	Recommended Fuse Size/Time Delay (A)	SCCR (A)	Connection	Refrigerant	Refrigerant Amount (oz)
TA10-010-16-xx	1480 BTU/H	115VAC/60Hz	14.50	3.44	12	*	Spring terminal block 24-8 AWG	R134a	4.00
TA10-010-26-xx		230VAC/60Hz	14.00	2.67	7	*			
TA20-010-48D-xx	1500 BTU/H	48VDC	-	3.50	8 (fast acting)	*			6.00
TA20-010-16-xx	1690 BTU/H	115VAC/60Hz	10.10	2.70	5	*			
TA10-015-16-xx	1725 BTU/H	115VAC/60Hz	14.60	3.44	12	*			7.75
TA10-015-26-xx		230VAC/60Hz	13.30	2.67	7	*			
TA10-027-16-xx	2680 BTU/H	115VAC/60Hz	10.00	3.20	8	*			13.25
TA10-027-46-xx		460VAC/60Hz	2.64	0.80	2	*			
TA20-020-16-xx	2705 BTU/H	115VAC/60Hz	10.63	4.10	5	*			9.75
TA20-020-26-xx		230VAC/60Hz	8.84	2.00	4	*			
TA10-033-16-xx	3300 BTU/H	115VAC/60Hz	16.00	4.80	12	*	Spring terminal block 16-6 AWG	R422d	14.25
TA10-033-46-xx		460VAC/60Hz	16.00	1.30	3	*			
TA10-020-26-xx	3585 BTU/H	230VAC/60Hz	13.65	3.07	7	*			9.75
TA10-040-26-xx	4000 BTU/H	230VAC/60Hz	13.41	3.07	6	*	Spring terminal block 16-6 AWG	R422d	13.25
TA10-050-16-xx	4390 BTU/H	115VAC/60Hz	23.42	7.26	12	*			
TA10-050-26-xx		230VAC/60Hz	19.15	3.76	10	*			12.50
TA10-050-46-xx		460VAC/60Hz	9.18	1.86	5	160kA			
TA10-045-16-xx	4535 BTU/H	115VAC/60Hz	32.30	6.82	12	*	Spring terminal block 24-8 AWG	R134a	14.00
TA10-045-46-xx		460VAC/60Hz	7.74	1.70	3	*			15.00
TA10-059-16-xx	5910 BTU/H	115VAC/60Hz	32.30	6.14	12	*	Spring terminal block 16-6 AWG	R422d	
TA10-060-16-xx	7580 BTU/H	115VAC/60Hz	42.41	7.83	25	*			
TA10-060-26-xx		230VAC/60Hz	21.15	4.80	12	*			18.00
TA10-060-46-xx		460VAC/60Hz	10.13	1.80	5	160kA			

Note: \* Voltage variation no greater than  $\pm 10\%$  from nameplate rating and Frequency variation no greater than  $\pm 3\text{Hz}$  from nameplate rating.

# TA10 Series Enclosure Air Conditioners, Frame Size TA10-1



## NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## Features

- Fits 12in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance

## Listings

- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA



TA10-010-16-12

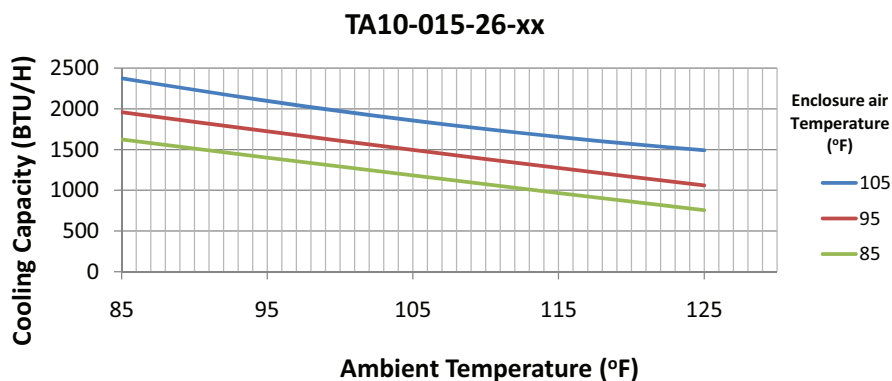
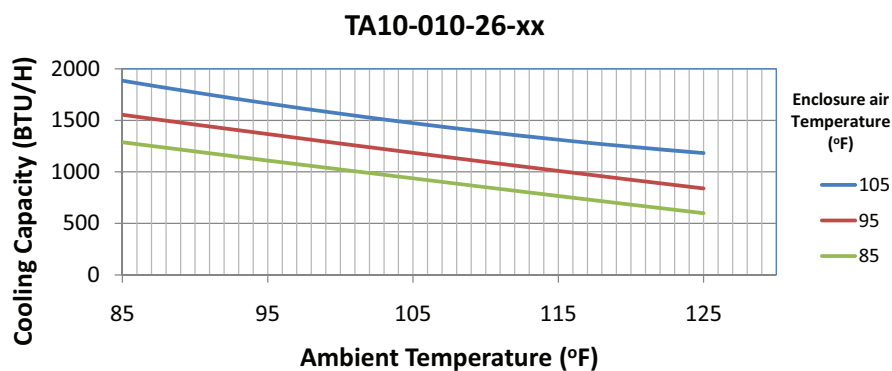
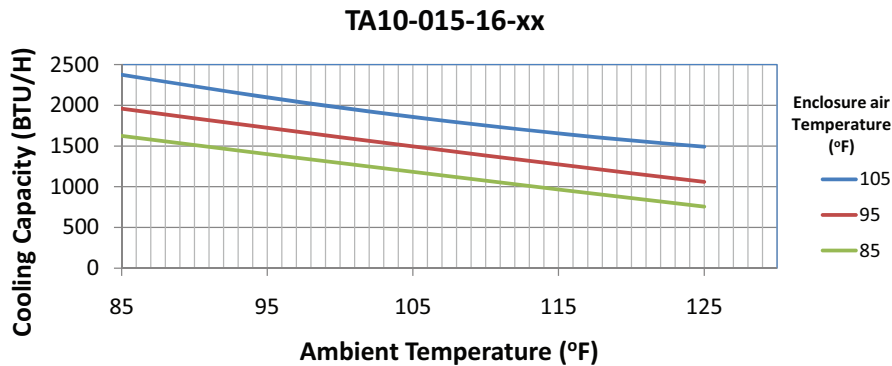
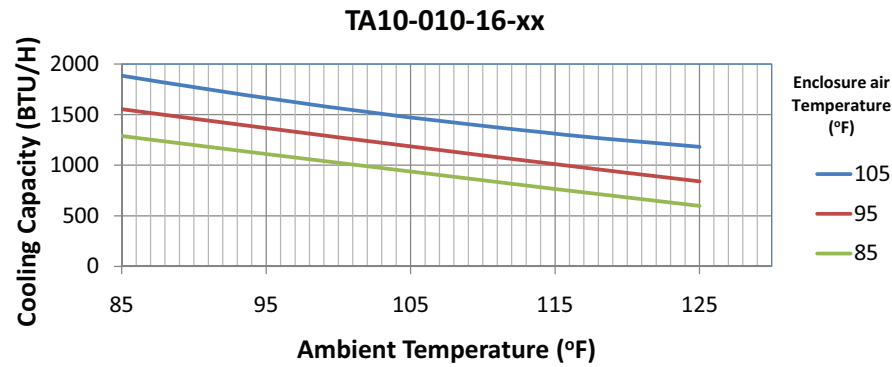
TA10 Enclosure Air Conditioners, Frame Size TA10-1											
NEMA 12	Price	Drawing Link	NEMA 4	Price	Drawing Link	NEMA 4X	Price	Drawing Link	Nominal Cooling Capacity (BTU/H)	Operating Voltage	Weight (lb)
<a href="#">TA10-010-16-12</a>	\$2,565.00	<a href="#">PDF</a>	<a href="#">TA10-010-16-04</a>	\$2,597.00	<a href="#">PDF</a>	<a href="#">TA10-010-16-4X</a>	\$3,028.00	<a href="#">PDF</a>	1480	115VAC/60Hz	51
<a href="#">TA10-010-26-12</a>	\$2,597.00	<a href="#">PDF</a>	<a href="#">TA10-010-26-04</a>	\$2,629.00	<a href="#">PDF</a>	<a href="#">TA10-010-26-4X</a>	\$3,060.00	<a href="#">PDF</a>		230VAC/60Hz	53
<a href="#">TA10-015-16-12</a>	\$2,593.00	<a href="#">PDF</a>	<a href="#">TA10-015-16-04</a>	\$2,625.00	<a href="#">PDF</a>	<a href="#">TA10-015-16-4X</a>	\$3,056.00	<a href="#">PDF</a>	1725	115VAC/60Hz	51
<a href="#">TA10-015-26-12</a>	\$2,625.00	<a href="#">PDF</a>	<a href="#">TA10-015-26-04</a>	\$2,655.00	<a href="#">PDF</a>	<a href="#">TA10-015-26-4X</a>	\$3,088.00	<a href="#">PDF</a>		230VAC/60Hz	53

Note: \* Voltage variation no greater than  $\pm 10\%$  from nameplate rating and Frequency variation no greater than  $\pm 3\text{Hz}$  from nameplate rating.

# TA10 Series Enclosure Air Conditioners, Frame Size TA10-1



## Air Conditioner Performance Curves



# TA10 Series Enclosure Air Conditioners, Frame Size TA10-2



## NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## Features

- Fits 12in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance

## Listings

- UL File: SA33404
- UL 50, 12, 4, and
- Made in USA



TA10-020-26-4X

TA10 Enclosure Air Conditioners, Frame Size TA10-2											
NEMA 12	Price	Drawing Link	NEMA 4	Price	Drawing Link	NEMA 4X	Price	Drawing Link	Nominal Cooling Capacity (BTU/H)	Operating Voltage	Weight (lb)
<a href="#">TA10-027-16-12</a>	\$3,190.00	<a href="#">PDF</a>	<a href="#">TA10-027-16-04</a>	\$3,222.00	<a href="#">PDF</a>	<a href="#">TA10-027-16-4X</a>	\$3,670.00	<a href="#">PDF</a>	2680	115VAC/60Hz	65
<a href="#">TA10-027-46-12</a>	\$3,649.00	<a href="#">PDF</a>	<a href="#">TA10-027-46-04</a>	\$3,683.00	<a href="#">PDF</a>	<a href="#">TA10-027-46-4X</a>	\$4,131.00	<a href="#">PDF</a>		460VAC/60Hz	99
<a href="#">TA10-033-16-12</a>	\$3,220.00	<a href="#">PDF</a>	<a href="#">TA10-033-16-04</a>	\$3,252.00	<a href="#">PDF</a>	<a href="#">TA10-033-16-4X</a>	\$3,701.00	<a href="#">PDF</a>	3300	115VAC/60Hz	65
<a href="#">TA10-033-46-12</a>	\$3,679.00	<a href="#">PDF</a>	<a href="#">TA10-033-46-04</a>	\$3,711.00	<a href="#">PDF</a>	<a href="#">TA10-033-46-4X</a>	\$4,160.00	<a href="#">PDF</a>		460VAC/60Hz	99
<a href="#">TA10-020-26-12</a>	\$3,151.00	<a href="#">PDF</a>	<a href="#">TA10-020-26-04</a>	\$3,181.00	<a href="#">PDF</a>	<a href="#">TA10-020-26-4X</a>	\$3,614.00	<a href="#">PDF</a>	3585	230VAC/60Hz	72
<a href="#">TA10-040-26-12</a>	\$3,179.00	<a href="#">PDF</a>	<a href="#">TA10-040-26-04</a>	\$3,211.00	<a href="#">PDF</a>	<a href="#">TA10-040-26-4X</a>	\$3,644.00	<a href="#">PDF</a>	4000		
<a href="#">TA10-045-16-12</a>	\$3,261.00	<a href="#">PDF</a>	<a href="#">TA10-045-16-04</a>	\$3,315.00	<a href="#">PDF</a>	<a href="#">TA10-045-16-4X</a>	\$3,743.00	<a href="#">PDF</a>	4535	115VAC/60Hz	65
<a href="#">TA10-045-46-12</a>	\$3,716.00	<a href="#">PDF</a>	<a href="#">TA10-045-46-04</a>	\$3,769.00	<a href="#">PDF</a>	<a href="#">TA10-045-46-4X</a>	\$4,196.00	<a href="#">PDF</a>		460VAC/60Hz	99

Note: \* Voltage variation no greater than  $\pm 10\%$  from nameplate rating and Frequency variation no greater than  $\pm 3\text{Hz}$  from nameplate rating.

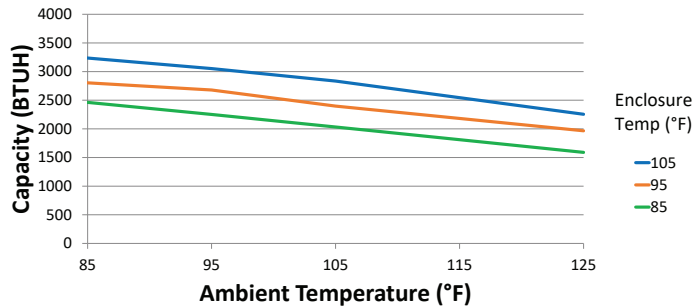


# TA10 Series Enclosure Air Conditioners, Frame Size TA10-2

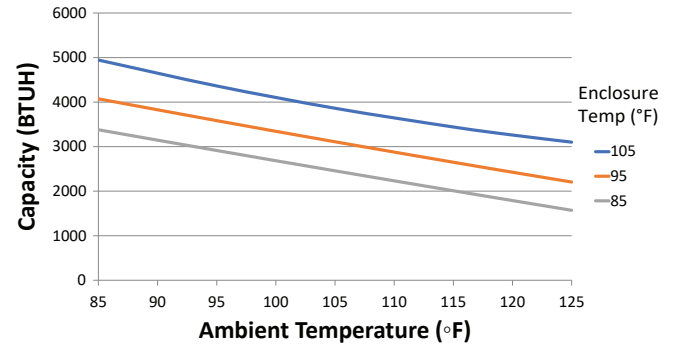


## Air Conditioner Performance Curves

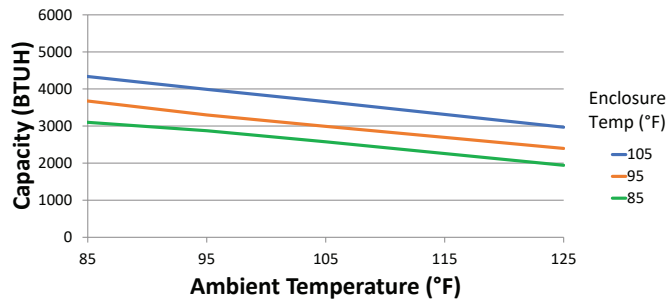
TA10-027



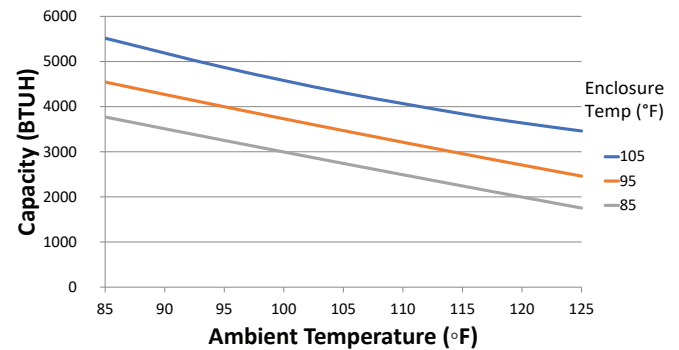
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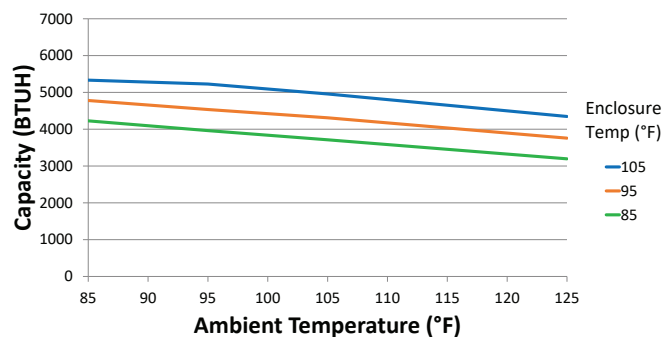
TA10-033



TA10-040-26-XX



TA10-045



# TA10 Series Enclosure Air Conditioners, Frame Size TA10-3



## NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## Features

- Fits 12in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance

## Listings

- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA



TA10-059-16-4X

TA10 Enclosure Air Conditioners, Frame Size TA10-3											
NEMA 12	Price	Drawing Link	NEMA 4	Price	Drawing Link	NEMA 4X	Price	Drawing Link	Nominal Cooling Capacity (BTU/H)	Operating Voltage	Weight (lb)
<a href="#">TA10-050-16-12</a>	Retired	<a href="#">PDF</a>	<a href="#">TA10-050-16-04</a>	Retired	<a href="#">PDF</a>	<a href="#">TA10-050-16-4X</a>	Retired	<a href="#">PDF</a>	4390	115VAC/60Hz	97
<a href="#">TA10-050-26-12</a>	\$3,715.00	<a href="#">PDF</a>	<a href="#">TA10-050-26-04</a>	\$3,765.00	<a href="#">PDF</a>	<a href="#">TA10-050-26-4X</a>	\$4,177.00	<a href="#">PDF</a>		230VAC/60Hz	92
<a href="#">TA10-050-46-12</a>	\$4,067.00	<a href="#">PDF</a>	<a href="#">TA10-050-46-04</a>	\$4,116.00	<a href="#">PDF</a>	<a href="#">TA10-050-46-4X</a>	\$4,493.00	<a href="#">PDF</a>		460VAC/60Hz	136
<a href="#">TA10-059-16-12</a>	\$3,797.00	<a href="#">PDF</a>	<a href="#">TA10-059-16-04</a>	\$3,849.00	<a href="#">PDF</a>	<a href="#">TA10-059-16-4X</a>	\$4,276.00	<a href="#">PDF</a>	5910	115VAC/60Hz	97
<a href="#">TA10-060-16-12</a>	\$3,785.00	<a href="#">PDF</a>	<a href="#">TA10-060-16-04</a>	\$3,838.00	<a href="#">PDF</a>	<a href="#">TA10-060-16-4X</a>	\$4,250.00	<a href="#">PDF</a>	7580	115VAC/60Hz	
<a href="#">TA10-060-26-12</a>	\$3,869.00	<a href="#">PDF</a>	<a href="#">TA10-060-26-04</a>	\$3,920.00	<a href="#">PDF</a>	<a href="#">TA10-060-26-4X</a>	\$4,334.00	<a href="#">PDF</a>		230VAC/60Hz	98
<a href="#">TA10-060-46-12</a>	\$4,425.00	<a href="#">PDF</a>	<a href="#">TA10-060-46-04</a>	\$4,476.00	<a href="#">PDF</a>	<a href="#">TA10-060-46-4X</a>	\$4,888.00	<a href="#">PDF</a>		460VAC/60Hz	142

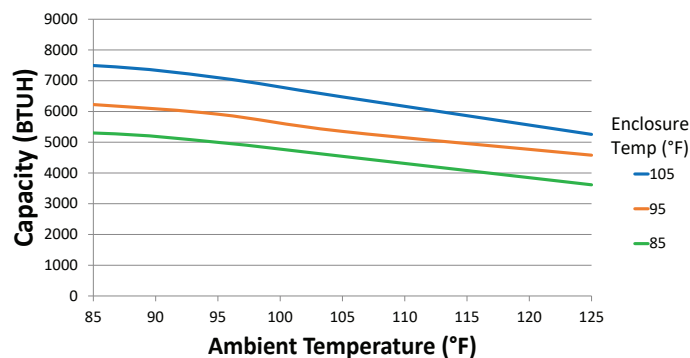
Note: \* Voltage variation no greater than  $\pm 10\%$  from nameplate rating and Frequency variation no greater than  $\pm 3\text{Hz}$  from nameplate rating.

# TA10 Series Enclosure Air Conditioners, Frame Size TA10-3

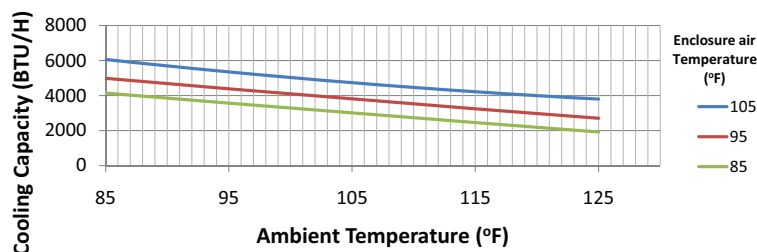


## Air Conditioner Performance Curves

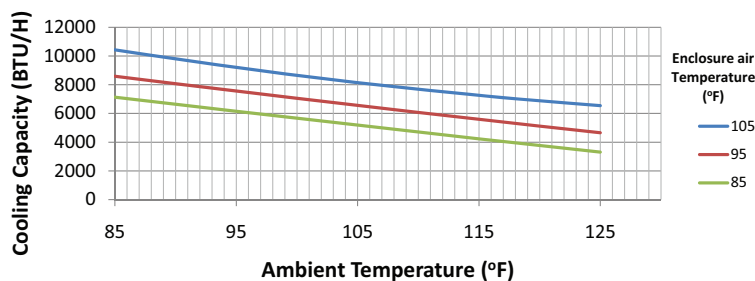
**TA10-059**



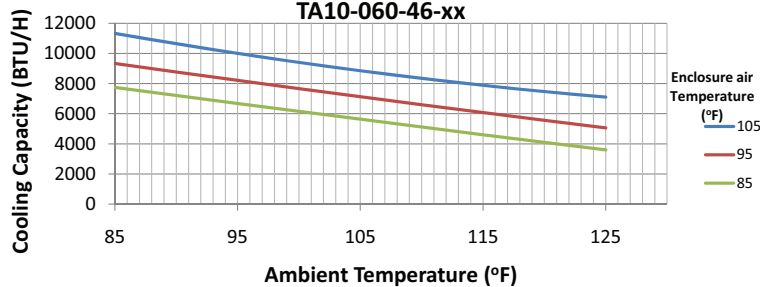
**TA10-050-26-xx  
TA10-050-46-xx**



**TA10-060-16-xx**



**TA10-060-26-xx  
TA10-060-46-xx**



# TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-0



## NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## Features

- Fits 7 or 8in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance
- Dual condenser coils; does not require filters

## Listings

- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA



TA20-10-48D-12

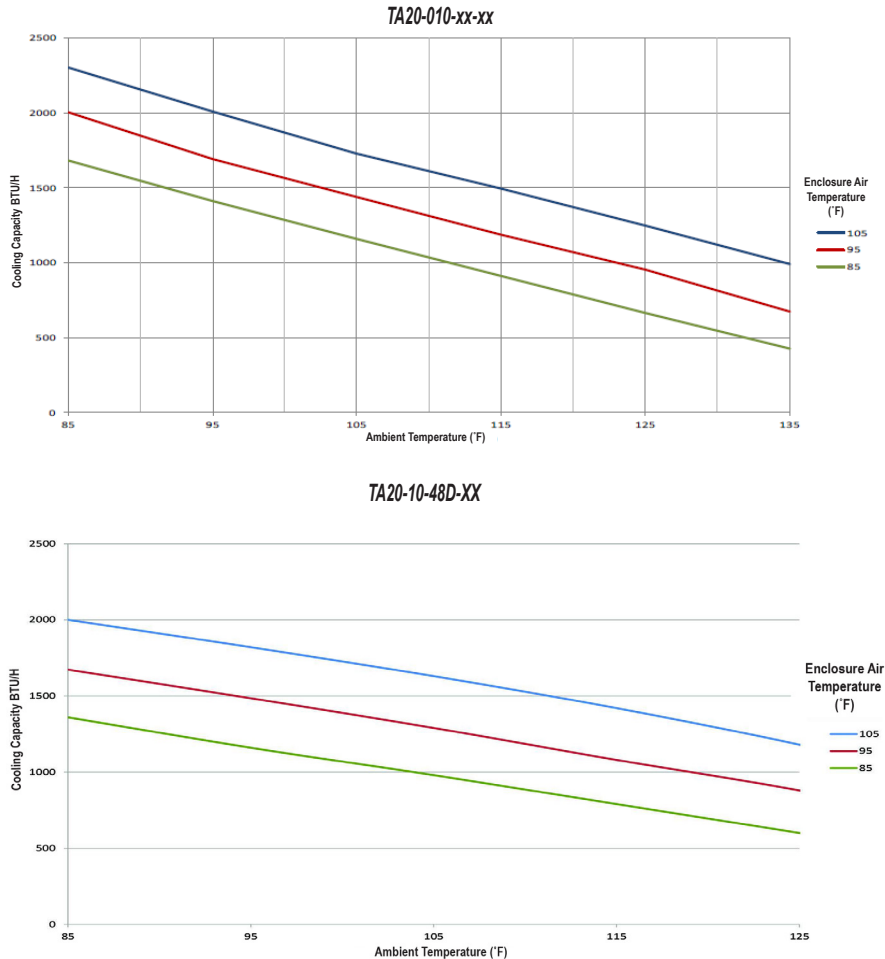
TA20 Enclosure Compact Air Conditioners, Frame Size TA20-0								
NEMA 12	Price	NEMA 4	Price	NEMA 4X	Price	Nominal Cooling Capacity (BTU/H)	Operating Voltage	Weight (lb)
<a href="#">TA20-010-16-12</a>	\$2,675.00	<a href="#">TA20-010-16-04</a>	\$2,705.00	<a href="#">TA20-010-16-4X</a>	\$3,138.00	1000	115VAC/60Hz	31
<a href="#">TA20-010-48D-12</a>	\$3,435.00	<a href="#">TA20-010-48D-04</a>	\$3,466.00	<a href="#">TA20-010-48D-4X</a>	\$3,899.00		48VDC	30

Note: \* Voltage variation no greater than  $\pm 10\%$  from nameplate rating and Frequency variation no greater than  $\pm 3\text{Hz}$  from nameplate rating.

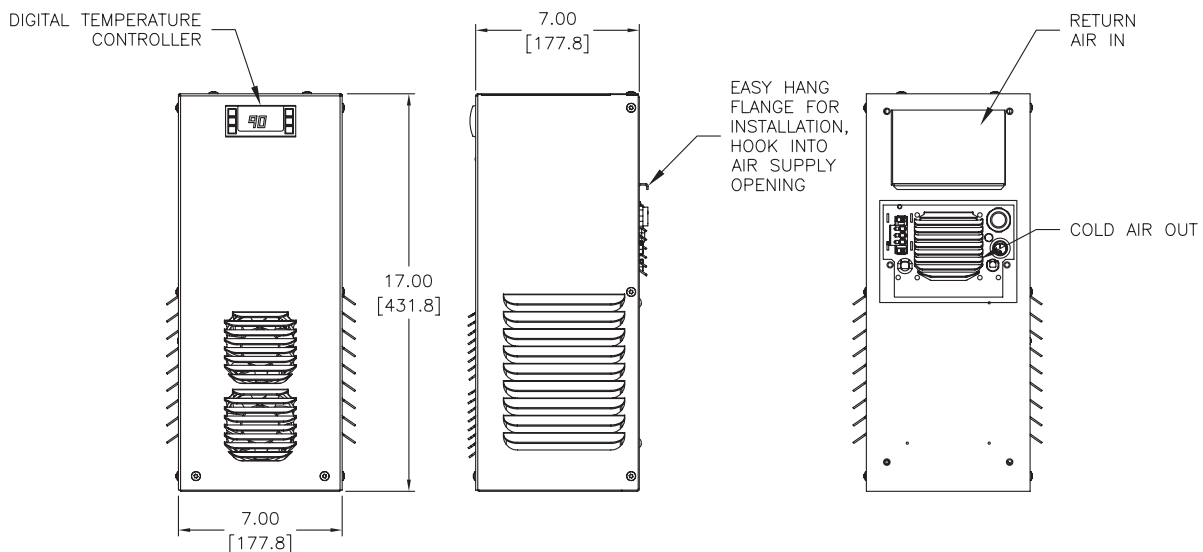
# TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-0



## Air Conditioner Performance Curves



## Dimensions



# TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-1



## NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

## Features

- Fits 10in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils for NEMA 4 and 4X corrosion resistance

## Listings

- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA



TA20-20-16-12

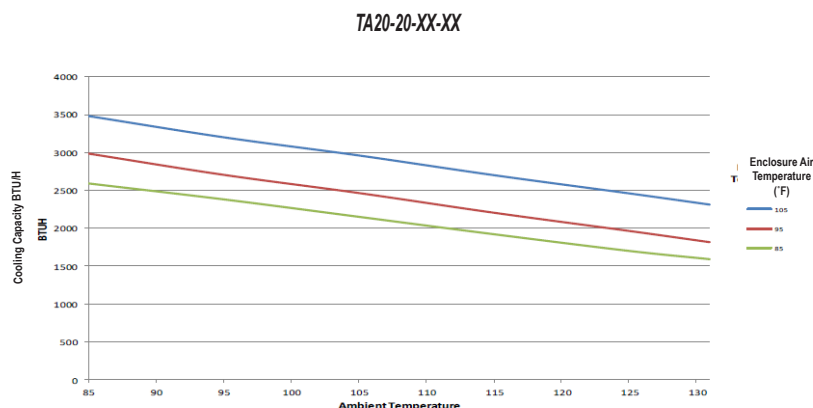
TA20 Enclosure Compact Air Conditioners, Frame Size TA20-1								
NEMA 12	Price	NEMA 4	Price	NEMA 4X	Price	Nominal Cooling Capacity (BTU/H)	Operating Voltage	Weight (lb)
<a href="#">TA20-020-16-12</a>	\$2,869.00	<a href="#">TA20-020-16-04</a>	\$2,901.00	<a href="#">TA20-020-16-4X</a>	\$3,334.00	2000	120VAC/60Hz	44
<a href="#">TA20-020-26-12</a>	\$2,914.00	<a href="#">TA20-020-26-04</a>	\$2,946.00	<a href="#">TA20-020-26-4X</a>	\$3,379.00		230VAC/60Hz	49

Note: \* Voltage variation no greater than  $\pm 10\%$  from nameplate rating and Frequency variation no greater than  $\pm 3\text{Hz}$  from nameplate rating.

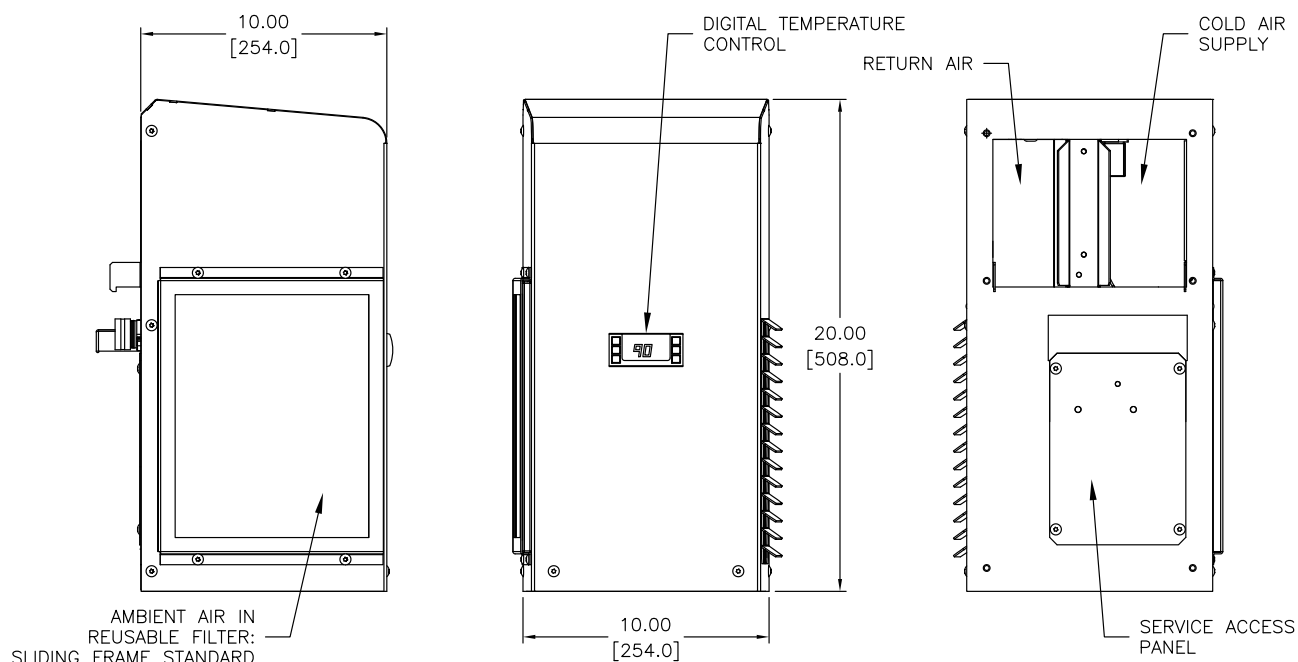
# TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-1



## Air Conditioner Performance Curves



## Air Conditioner Dimensions





# Air Conditioners Filters

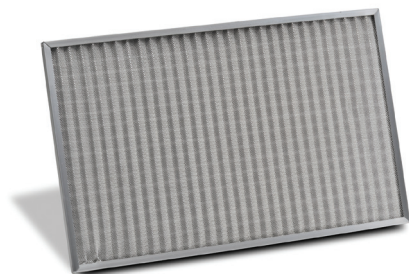
## Replacement Filters



Replacement filters are identical to the original filters supplied with the air conditioners. Clean/replace the filter regularly to keep the air conditioner working at its highest efficiency.

### Features

- 250 micron expanded aluminum filter element
- 60% filter efficiency
- Washable and reusable



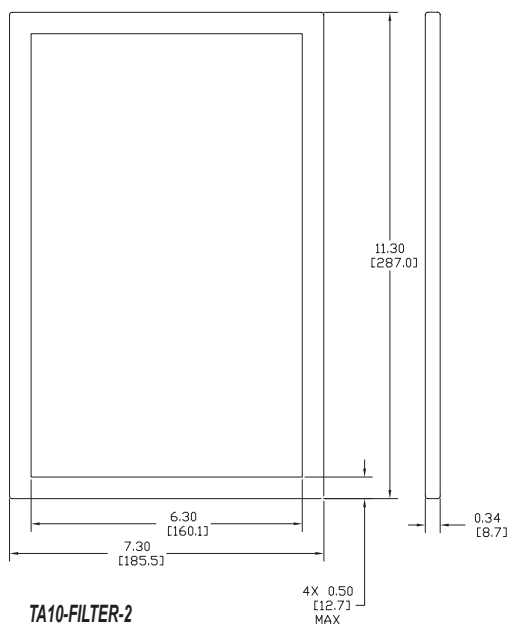
TA10-FILTER-3



TA20-FILTER-1

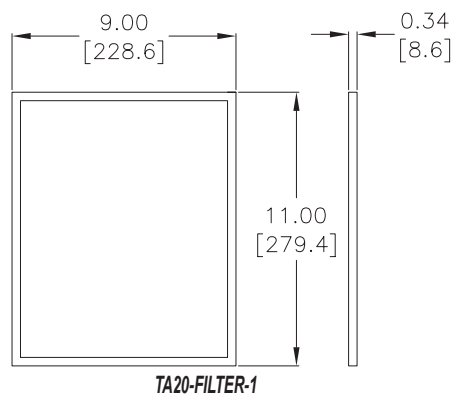
Air Conditioner Filters			
Part Number	Price	Description	Frame Size
<a href="#">TA10-FILTER-1</a>	\$24.50	Replacement filter for TA10 series air conditioning units, 1000 to 1500 BTU/H	TA10-1
<a href="#">TA10-FILTER-2</a>	\$27.00	Replacement filter for TA10 series air conditioning units, 2000 to 4000 BTU/H	TA10-2
<a href="#">TA10-FILTER-3</a>	\$30.50	Replacement filter for TA10 series air conditioning units, 5000 to 6000 BTU/H	TA10-3
<a href="#">TA20-FILTER-1</a>	\$28.00	Replacement filter for TA20 series air conditioning units, 2000 BTU/H	TA20-1

### Dimensions

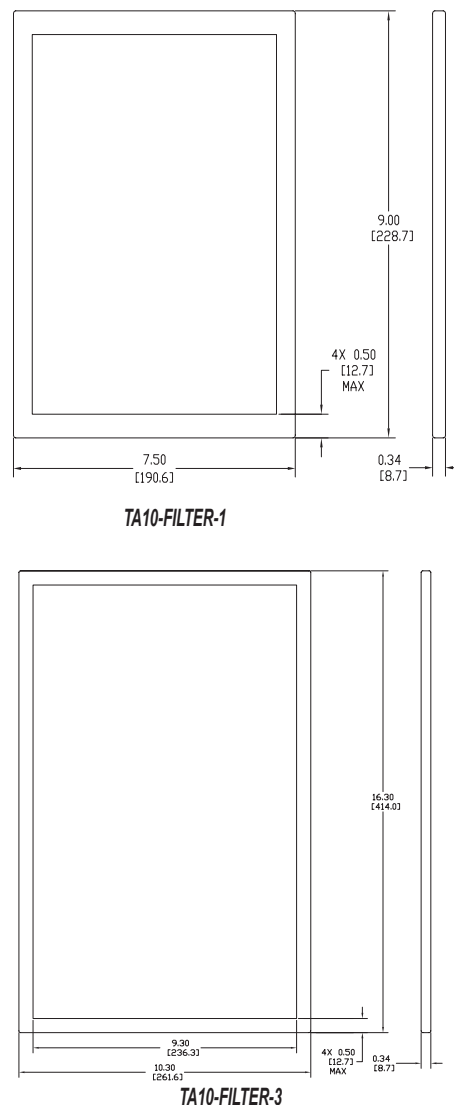


TA10-FILTER-2

TA10-FILTER-1



TA20-FILTER-1



TA10-FILTER-3

# 2.0 in [51mm] Louvered Frame and Filter Kits



TA20-LVFL-1-4X

2.0 in [51mm] louvered frame and filter kits are ideal in food processing or dirty environments where filter maintenance is crucial. Stratus offers extended surface, 2.0 in [51 mm] deep filter and sliding filter frame assemblies. In wash-down applications, stainless steel filters are preferred over aluminum filters.

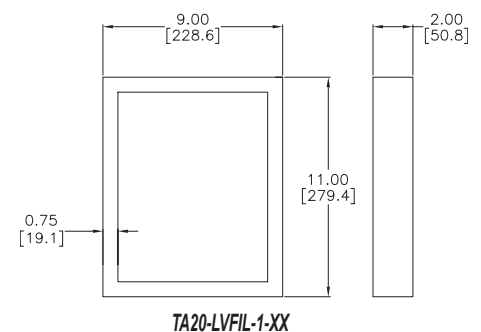
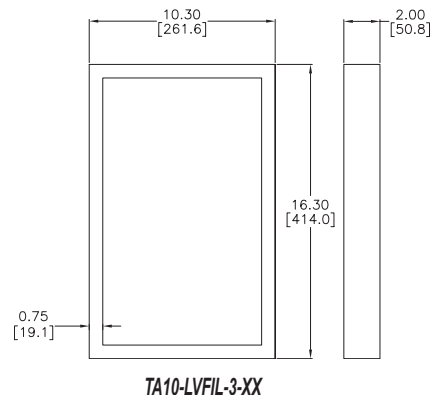
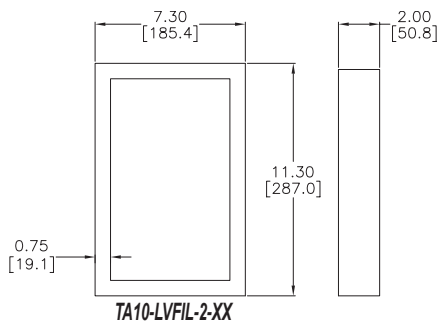
## Features

- 2in louvered frame and filter kit
- 250 micron stainless steel mesh filter
- 97% efficiency extends filter capacity 400%
- Washable and reusable
- Deep filter frames easily retrofitted on existing units with standard filters using the same mounting hole and screws on your unit

## Air Conditioner Filters

Part Number	Price	Description	Frame Size
<a href="#"><u>TA10-LVFIL-2-04</u></a>	\$424.00	Stratus louvered filter frame assembly, carbon steel, ANSI 61 gray finish, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000-4000 BTU/H TA10 series enclosure air conditioners on NEMA 4 or NEMA 12 enclosures.	TA10-2
<a href="#"><u>TA10-LVFIL-3-04</u></a>	\$450.00	Stratus louvered filter frame assembly, carbon steel, ANSI 61 gray finish, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 5000-6000 BTU/H TA10 series enclosure air conditioners on NEMA 4 or NEMA 12 enclosures.	TA10-3
<a href="#"><u>TA10-LVFIL-2-4X</u></a>	\$483.00	Stratus louvered filter frame assembly, 304 stainless steel, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000-4000 BTU/H TA10 series enclosure air conditioners on NEMA 4X enclosures.	TA10-2
<a href="#"><u>TA10-LVFIL-3-4X</u></a>	\$517.00	Stratus louvered filter frame assembly, 304 stainless steel, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 5000-6000 BTU/H TA10 series enclosure air conditioners on NEMA 4X enclosures.	TA10-3
<a href="#"><u>TA20-LVFIL-1-04</u></a>	\$330.00	Stratus louvered filter frame assembly, carbon steel, ANSI 61 gray finish, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000 BTU/H TA20 series enclosure air conditioners on NEMA 4 or NEMA 12 enclosures.	TA20-1
<a href="#"><u>TA20-LVFIL-1-4X</u></a>	\$425.00	Stratus louvered filter frame assembly, 304 stainless steel, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000 BTU/H TA20 series enclosure air conditioners on NEMA 4X enclosures.	TA20-1

## Dimensions



# SoliTherm® Thermoelectric Coolers



## Applications

Thermoelectric elements utilize the Peltier Effect to create a temperature difference between the internal and ambient heat sinks, making internal air cooler while dissipating heat into the external environment. Fans assist the convective heat transfer from the heat sinks, which are optimized for maximum flow.

The Seifert SoliTherm® Peltier thermoelectric coolers can be mounted in nearly every position (except roof mounting) because they don't have a compressor or any moving parts aside from the fans. Depending on the application, condensation management may need to be considered. Seifert SoliTherm thermoelectric coolers are available as recessed with the internal heat sink and fan inside the enclosure and the ambient components on the outside. But, frames are available for external mounting. These thermoelectric coolers are resistant to extreme ambient conditions and can operate effectively even in environments that are dusty and oily. They comply with European standards IEC/TC 62610-1 and IEC/TC 62610-3, and can be used for both indoor and outdoor applications.

## Construction

- Recessed mounting (flush-mounting kit sold separately)
- Cooling capacities from 100 to 680 BTU/H [30W to 200W]
- Operating Temperature Range: -4°F to 149°F [20°C to 65°C]
- AISI 304 stainless steel housing
- Condensate tray and drain available separately
- Mounting nut torque: 3.3 lb-ft [4.5 Nm]
- Connection: Terminal block
- 24 VDC units require thermostat for set-point control

## Agency Approvals

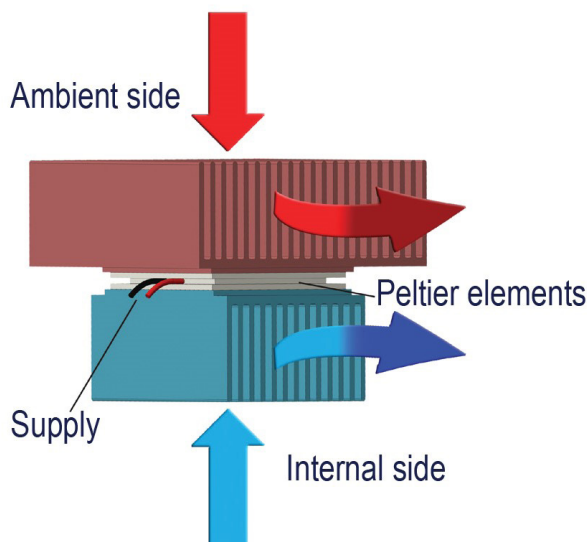
- CE, RoHS
- UL Recognized File number: SA32278
- NEMA 4X
- IP 66



SoliTherm® Thermoelectric Cooler General Specifications							
Part Number	Nominal Power / Max (W)	Cooling Capacity	Operating Voltage	Inrush Current (A)	Max Current (A)	Recommended Fuse Size (A)	Integral Thermostat
<a href="#">3035303</a>	44 - 52	100 BTU/H [30W]	24 VDC	4.0	2.2	5	No
<a href="#">3050303</a>	58 - 60	170 BTU/H [50W]		3.7	2.5	4	
<a href="#">3102303</a>	115 - 118	340 BTU/H [100W]		7.4	4.9	8	
<a href="#">3152303</a>	170 - 180	510 BTU/H [150W]		11	7.5	10	
<a href="#">3200303</a>	260 - 280	680 BTU/H [200W]		17	11.6	16	
<a href="#">6105303</a>	126 - 131	340 BTU/H [100W]	120-230 VAC	1.6	1.1	2	Yes

Notes: Power and Cooling Capacity values are for 95°F [35°C] internal and ambient temperatures. Refer to Performance Graphs for values corresponding to other conditions.  
Fuses are Class T Time Delay.

## Airflow Example



### THERMOELECTRIC COOLING PRINCIPLE

# SoliTherm® Thermoelectric Coolers



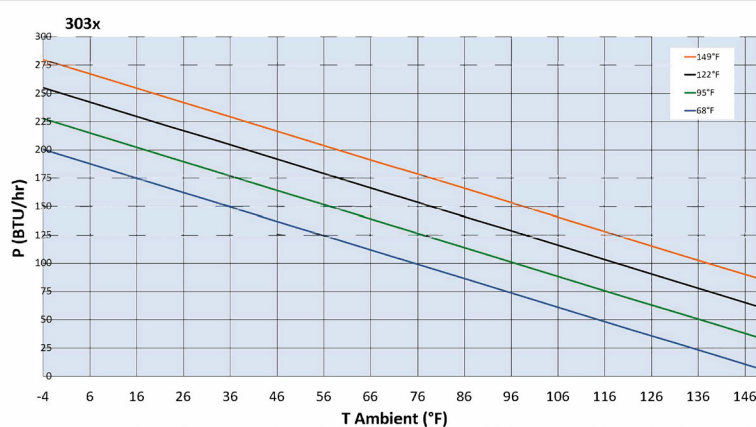
## SoliTherm Thermoelectric Coolers

Part Number	Price	Dimensions HxWxD	Cutout Dimensions	Weight (lb)	Drawing Link
<a href="#">3035303</a>	\$583.00	6.04 x 4.33 x 5.07 [110 x 154 x 129]	4.80 x 3.23 [122 x 82]	4	<a href="#">PDF</a>
<a href="#">3050303</a>	\$774.00	8.11 x 6.06 x 5.31 [206 x 154 x 135]	6.69 x 4.72 [170 x 120]	7	<a href="#">PDF</a>
<a href="#">3102303</a>	\$1,361.00	7.87 x 11.97 x 5.43 [200 x 304 x 138]	10.24 x 6.30 [260 x 160]	13	<a href="#">PDF</a>
<a href="#">3152303</a>	\$1,775.00	15.75 x 7.09 x 6.73 [400 x 180 x 171]	14.61 x 6.10 [371 x 155]	20	<a href="#">PDF</a>
<a href="#">3200303</a>	\$1,690.00	15.75 x 7.09 x 6.73 [400 x 180 x 171]	14.61 x 6.10 [371 x 155]	22	<a href="#">PDF</a>
<a href="#">6105303</a>	Retired	11.02 x 13.78 x 7.2 [280 x 350 x 183]	13.78 x 11.02 [350 x 280]	21	<a href="#">PDF</a>

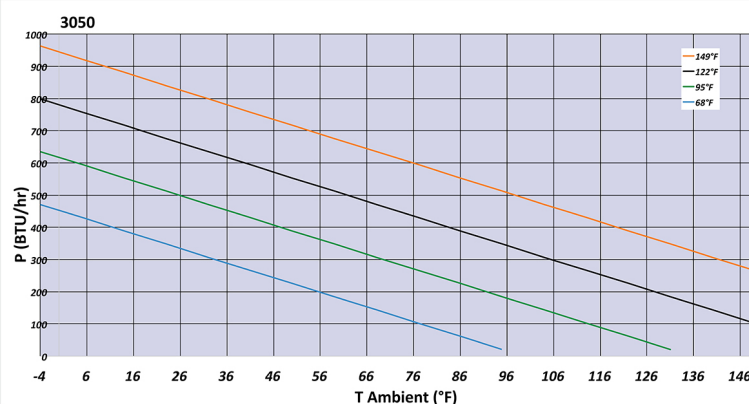
Note: Dimensions in inches [millimeters].



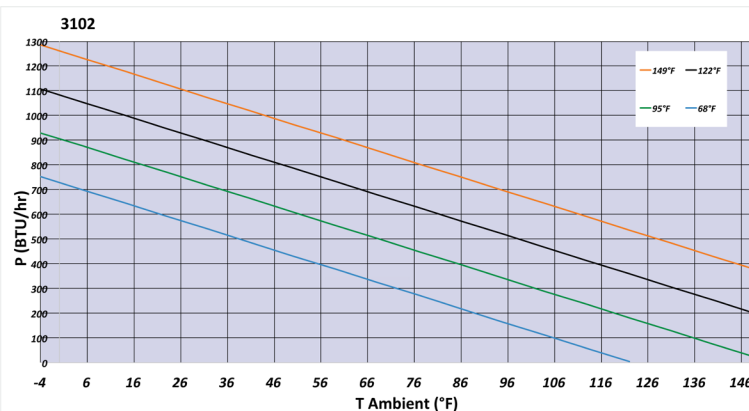
[3035303](#)  
24VDC



[3050303](#)  
24VDC



[3102303](#)  
24VDC



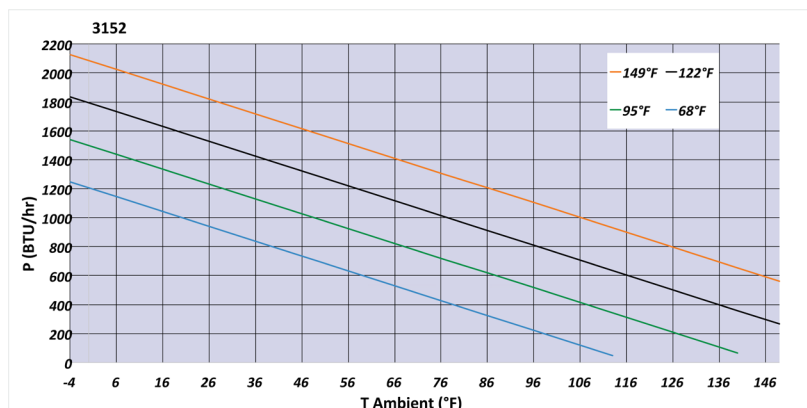
# SoliTherm® Thermoelectric Coolers



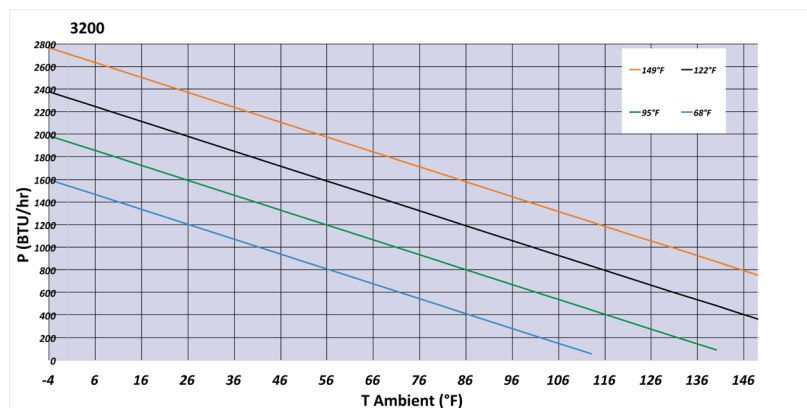
## Performance Graphs



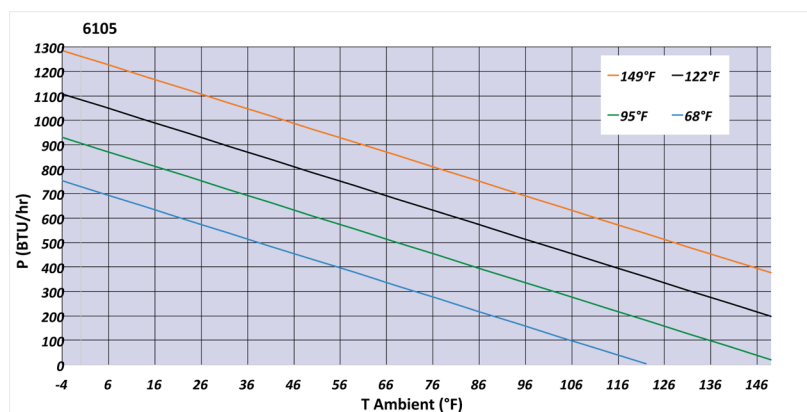
3152303  
24VDC



3200303  
24VDC



6105303  
120VAC



# SoliTherm® Thermoelectric Coolers



## External Mounting Kit

This kit is for external mounting of SoliTherm Thermoelectric Coolers. Add these kits when there isn't space in the enclosure for the internal heat sink and fan.

### Features

- AISI 304 stainless steel
- Hardware included



1012305

SoliTherm Thermoelectric Cooler External Mounting Kit		
Part Number	Price	For Use With
<u>1011305</u>	\$129.00	<u>3035303</u>
<u>1012305</u>	\$149.00	<u>3050303</u>
<u>1013305</u>	\$86.00	<u>3102303</u>
<u>1014305</u>	\$127.00	<u>3152303</u> <u>3200303</u>
<u>1015305</u>	\$113.00	<u>6105303</u>

## Condensate Drain Kit

As with a conventional air conditioner, cooling air with a thermoelectric cooler may produce condensation. Consider adding condensation management in humid environments.

This kit contains a condensate tray and drain for use with SoliTherm Thermoelectric Coolers.

Mounts to cooler using existing mounting bolts for enclosure.

### Features

- Stainless steel AISI 304
- Hardware included



1001303

SoliTherm Thermoelectric Cooler Condensate Drain Kit		
Part Number	Price	For Use With
<u>1001303</u>	\$136.00	<u>3035303</u> <u>3050303</u>
<u>1003303</u>	\$158.00	<u>3102303</u>
<u>1002303</u>	\$142.00	<u>3152303</u> <u>3200303</u>
<u>1004303</u>	\$169.00	<u>6105303</u>



# Vortex Coolers



## Features

- Relief valves and seals built into the vortex coolers which enable the units to maintain the sealed nature of NEMA enclosures
- No freon
- Small physical size
- Creates cool air without refrigerants (no CFCs, HCFCs)
- Exceptionally reliable - no moving parts and virtually no maintenance
- No fans
- Stainless steel construction
- All replacement generators fit any of the vortex coolers. No need to purchase a new cooler if you need to change your cooling capacity
- 5-year warranty

Compressed air is injected into the vortex tube at extremely high speeds and that creates a cyclone, or vortex, spinning a million revolutions per minute. Part of the air is forced to spin inward to the center and travels up a long tube where a valve turns the spinning column of air inside itself. The inside column of air gives up its heat to the outside column. The cold air is directed out the cold end of the Vortex Tube and the hot air is directed out the other end of the Vortex Tube. And since there are no moving parts there is little need for maintenance.

## Applications

Compressed air cooling is used where conventional enclosure cooling by air conditioners or heat exchangers is not possible. (Examples: Small to medium size enclosures, nonmetallic enclosures, and areas where the size of cooling devices is restricted)

## Mounting holes

- Mounts in a 0.25in [6 mm] electrical conduit knockout

## Agency Approvals

- UL Recognized component [File E329932]UL/ NEMA 4, 4X



## Requirements

- Uses clean, dry, oil-free compressed air (80 to 100 PSIG / 70° F or below) required to achieve published BTU/H ratings. Lower pressures and/or higher temperatures will reduce BTU/H rating
- A 5-micron water and particulate removal filter must be installed prior to any vortex cooler operation
- An oil removal filter can be installed between the 5-micron filter and the Vortex Cooler if oil is present in the compressed air line
- Thermostats, filters, regulators, and valves that work with Stratus Vortex Coolers are sold separately. Kits that include these items are listed later in this section
- Operation above 100 PSIG is not recommended. The use of a pressure regulator will be necessary for higher pressures
- How vortex coolers create cold air



Part Type	Part Number	Price	Description	Capacity BTUH [W]	Air Consumption SCFM [SLPM]
Vortex Coolers	<a href="#"><u>TV08-005-4X</u></a>	\$362.00	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	500 [147]	8 [227]
	<a href="#"><u>TV10-006-4X</u></a>	\$362.00	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	600 [176]	10 [283]
	<a href="#"><u>TV15-010-4X</u></a>	\$362.00	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	1000 [293]	15 [425]
	<a href="#"><u>TV25-018-4X</u></a>	\$362.00	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	1800 [528]	25 [708]
	<a href="#"><u>TV35-025-4X</u></a>	\$362.00	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	2500 [732]	35 [991]
Replacement Generators	<a href="#"><u>TV08-G</u></a>	\$11.25	Stratus vortex generator, replacement, polypropylene, white. Fits all Stratus TV series vortex cooler bodies.	500 [147]	8 [227]
	<a href="#"><u>TV10-G</u></a>	\$11.25	Stratus vortex generator, replacement, polypropylene, orange. Fits all Stratus TV series vortex cooler bodies.	600 [176]	10 [283]
	<a href="#"><u>TV15-G</u></a>	\$11.25	Stratus vortex generator, replacement, polypropylene, red. Fits all Stratus TV series vortex cooler bodies.	1000 [293]	15 [425]
	<a href="#"><u>TV25-G</u></a>	\$11.25	Stratus vortex generator, replacement, polypropylene, blue. Fits all Stratus TV series vortex cooler bodies.	1800 [528]	25 [708]
	<a href="#"><u>TV35-G</u></a>	\$11.25	Stratus vortex generator, replacement, polypropylene, yellow. Fits all Stratus TV series vortex cooler bodies.	2500 [732]	35 [991]

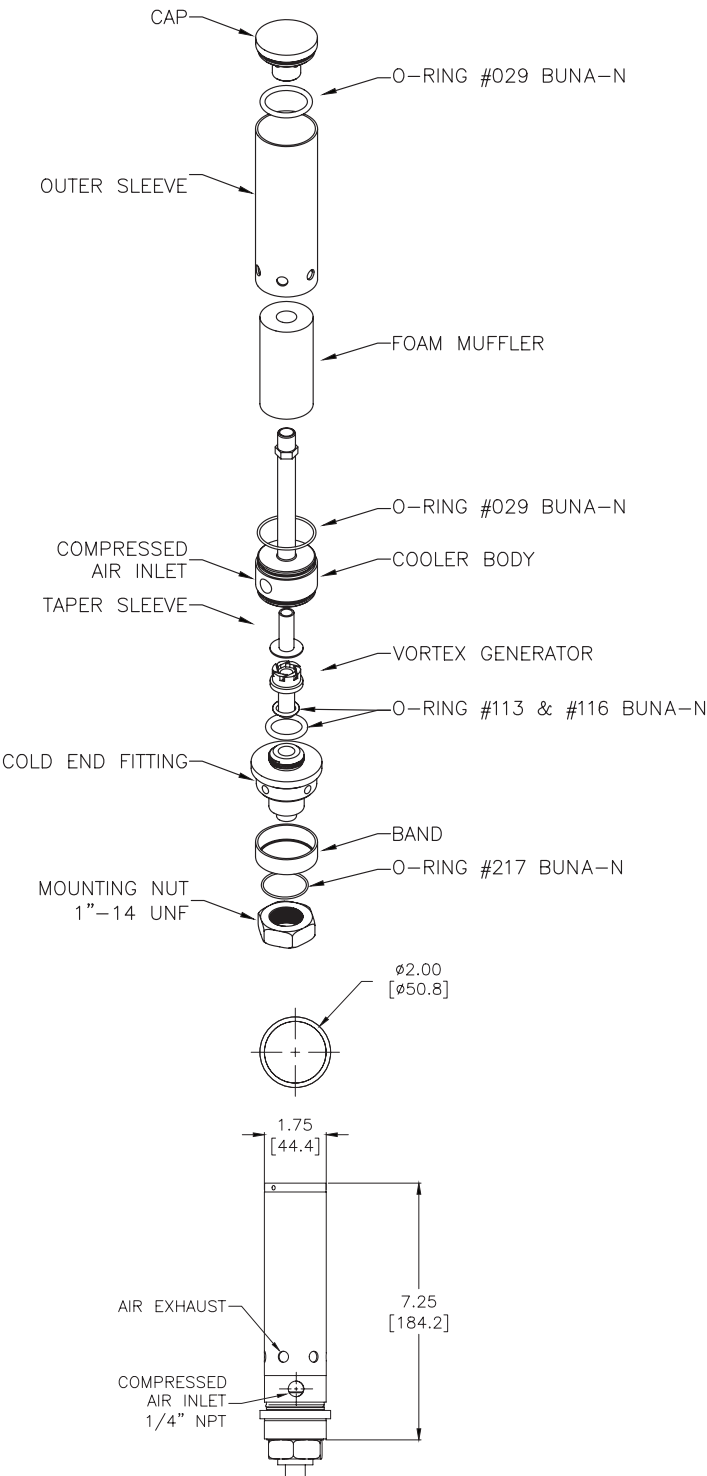


# Vortex Coolers



## Assembly

Part Type	Part Number	Price	Description
Replacement Parts	<a href="#"><u>TVACC-TS</u></a>	\$15.00	Stratus taper sleeve, replacement, brass. For use with all Stratus vortex coolers.
	<a href="#"><u>TVACC-TUBE</u></a>	\$16.00	Stratus distribution tube, replacement, flexible PVC. For use with all Stratus vortex coolers.
	<a href="#"><u>TVACC-MUFFLER</u></a>	\$13.75	Stratus muffer, replacement, polypropylene. For use with all Stratus vortex coolers.



## Dimensions

# Vortex Cooler Kits



## Features

- A complete kit for your vortex cooling applications
- Includes the vortex cooler, filter/regulator, 5-micron replacement filter element, solenoid valve and adjustable thermostat
- Adjustable thermostat has N.O. contacts, 32 to 140° F temperature range with a 7° F switching differential
- Kits are available in 500, 600, 1000, 1800, and 2500 BTUH capacities
- 120VAC and 24VDC kits available
- Important Installation Instructions
- Be sure to replace the 40-micron filter element in the filter/regulator with the 5-micron replacement filter

The 5-micron filter is required to separate harmful foreign matter from the air supply. This is required to maintain a clean supply of air to the cooler, allowing virtually maintenance-free operation.

When installing components, it is important to locate the solenoid valve upstream of the filter/regulator. This assures there are no unnecessary flow restrictions to the cooler and allows the semi-automatic drain feature of the filter/regulator to work properly.

All pneumatic components and the vortex cooler have 0.25 in [6 mm] FNPT air inlets/outlets. To be sure there is ample flow to the vortex cooler, all fittings and piping supplied to the components must be of the same size or larger. Smaller fittings, excessive turns (elbows, tees, etc), or use of plastic tubing fittings will reduce flow and affect the performance of the vortex cooler.

Plastic tubing is not recommended as the fittings associated with tubing and tubing inside diameter can reduce airflow. Do not use "quick couplings" anywhere in the system as they create flow restrictions and your cooler will not perform correctly.

Size your supply airline to the solenoid valve correctly. Up to 10 ft [3 m] long runs will require a pipe size of at least 0.25 in [6 mm] (3/8 in [10 mm] for hoses). 10 ft [3 m] to 50 ft [15.24m] long runs will require a pipe size of 3/8 in [10 mm] (0.5in [13 mm] for hoses). 50 ft [15.24m] to 100 ft [30.5m] long runs will require a pipe size of 0.5in [13 mm] (5/8in [16 mm] for hoses).

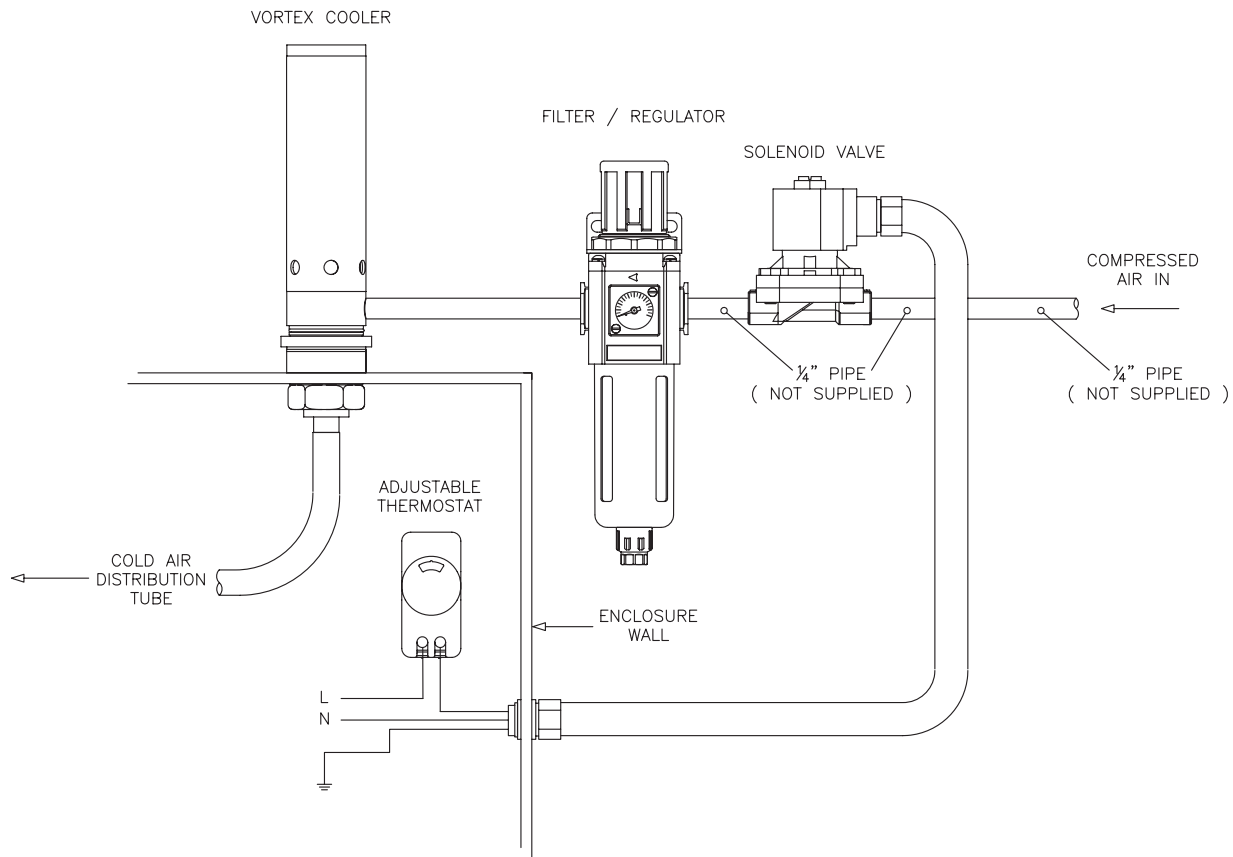
- Maximum supply air pressure on this combination of components is 145psi

Vortex Cooler Kits									
Kit Number	Price	Voltage	Capacity BTUH [W]	Air Consumption SCFM [SLPM]	Vortex Cooler Number	Solenoid Valve	Thermostat	Filter/Regulator	5-micron Filter
<a href="#"><u>TVK08-005-4X-120A</u></a>	\$470.00	120VAC	500 [147]	8 [227]	<a href="#"><u>TV08-005-4X</u></a>	<a href="#"><u>DVD-2BC2A-120A</u></a>	<a href="#"><u>011169-00</u></a>	<a href="#"><u>AFR2-3233</u></a>	<a href="#"><u>AFE2-31</u></a>
<a href="#"><u>TVK08-005-4X-24D</u></a>	\$470.00	120VAC	600 [176]	10 [283]					
<a href="#"><u>TVK10-006-4X-120A</u></a>	\$470.00	120VAC	1000 [293]	15 [425]					
<a href="#"><u>TVK10-006-4X-24D</u></a>	\$470.00	120VAC	1800 [528]	25 [708]					
<a href="#"><u>TVK15-010-4X-120A</u></a>	\$470.00	120VAC	2500 [732]	35 [991]					
<a href="#"><u>TVK15-010-4X-24D</u></a>	\$470.00	24VDC	500 [147]	8 [227]					
<a href="#"><u>TVK25-018-4X-120A</u></a>	\$470.00	24VDC	600 [176]	10 [283]					
<a href="#"><u>TVK25-018-4X-24D</u></a>	\$470.00	24VDC	1000 [293]	15 [425]					
<a href="#"><u>TVK35-025-4X-120A</u></a>	\$470.00	24VDC	1800 [528]	25 [708]					
<a href="#"><u>TVK35-025-4X-24D</u></a>	\$470.00	24VDC	2500 [732]	35 [991]					
Component Warranties					5-Year	1-Year	1-Year	2-Year	2-Year

# Vortex Cooler Kits



## Vortex Cooler Kit Installation Example



# Thermostats, Filters and Valves for Stratus Vortex Coolers



Thermostats, Filters, and Valves for Stratus Vortex Coolers		
<b>Thermostats</b> (See Small Thermostats for Enclosure Heaters, DIN Rail Mounted later in this section)	<b>Part Number</b>	<b>Description</b>
	<a href="#"><u>011169-00</u></a>	Stego thermostat, adjustable, N.O. (close on rise) 32 to 140 deg F, 7 deg F switching differential, 35mm DIN rail mount, for electrical climate control.
	<a href="#"><u>011160-00</u></a>	Stego thermostat, adjustable, N.O. (close on rise) 0 to 60 deg C, 4K switching differential, 35mm DIN rail mount, for electrical climate control.
<b>Filters **</b> (See Pneumatics)	<b>Part Number</b>	<b>Description</b>
	<a href="#"><u>AF2-223-N</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, nylon bowl, metal bowl guard. For use with Ax-22 series air prep components.
	<a href="#"><u>AF2-223</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, polycarbonate bowl, metal bowl guard. For use with Ax-22 series air prep components.
	<a href="#"><u>AF2-223-D</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, die-cast aluminum bowl, sight gauge. For use with Ax-22 series air prep components.
	<a href="#"><u>AFE2-21**</u></a>	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-2 series filters or AFR-2 series filter regulators.
	<a href="#"><u>AF2-323-N</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, nylon bowl, metal bowl guard. For use with Ax-32 series air prep components.
	<a href="#"><u>AF2-323</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, polycarbonate bowl, metal bowl guard. For use with Ax-32 series air prep components.
	<a href="#"><u>AF2-323-A</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), automatic drain, polycarbonate bowl, metal bowl guard. For use with Ax-32 series air prep components.
	<a href="#"><u>AF2-323-D</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, die-cast aluminum bowl, sight gauge. For use with Ax-32 series air prep components.
	<a href="#"><u>AF2-323-AD</u></a>	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), automatic drain, die-cast aluminum bowl, sight gauge. For use with Ax-32 series air prep components.
	<a href="#"><u>AFE2-31**</u></a>	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-3 series filters or AFR-3 series filter regulators.
<b>Valves</b> (See Pneumatics)	<b>Part Number</b>	<b>Description</b>
	<a href="#"><u>DVD-2AC2A-24D</u></a>	NITRA solenoid valve, 2-way, 2-position, N.C., brass body, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 24 VDC operating voltage, 18mm DIN style wiring plug.
	<a href="#"><u>DVD-2AC2A-120A</u></a>	NITRA solenoid valve, 2-way, 2-position, N.C., brass body, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 120 VAC operating voltage, 18mm DIN style wiring plug.
	<a href="#"><u>DVD-2BC2A-24A</u></a>	NITRA solenoid valve, 2-way, 2-position, N.C., glass-filled nylon body, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 24 VAC operating voltage, 11mm DIN style wiring plug.
	<a href="#"><u>DVD-2BC2A-120A</u></a>	NITRA solenoid valve, 2-way, 2-position, N.C., glass-filled nylon body, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 120 VAC operating voltage, 11mm DIN style wiring plug.
<b>Note: ** When purchasing filters for your Stratus Vortex Cooler, a 5-micron replacement filter element will need to be purchased in addition to the AF2-2xx or AF2-3xx filter.</b>		

# Vortex Cooler Kits



NEMA 4/4X



NEMA 12

## Applications

Compressed air cooling is used where conventional enclosure cooling by air conditioners or heat exchangers is not possible. (Examples: Small to medium size enclosures, nonmetallic enclosures, and areas where the size of cooling devices is restricted).

## Features

- Suitable for harsh environments
- Small physical size
- Creates cool air without refrigerants (no CFCs, HCFCs)
- Exceptionally reliable - no moving parts and virtually no maintenance

## Requirements

- Uses clean, dry, oil-free compressed air (100 PSIG / 70° F or below) required to achieve published BTU/H ratings. Lower pressures and higher temperatures will reduce BTU/H ratings
- A 5-micron water and particulate removal filter must be installed prior to any vortex cooler operation
- An oil removal filter can be installed between the 5 micron filter and the Vortex Cooler if oil is present in the compressed air line
- Mounting holes
- NEMA 12: (1) 1-3/32" (28mm) or 0.25in [6 mm] knockout hole for cooling tube and (1) 11/16in [152 mm] hole for thermostat
- NEMA 4 and 4X: (1) 1-15/16in [152 mm] (49mm) or 1-0.5in [13 mm] knockout hole for cooling tube and (2) #8 holes for thermostat

## Includes the following:

- Vortex cooler
- Vortex distribution tube
- Solenoid valve 120V / 60Hz - 110V / 50Hz
- Filter: 5-micron water and particulate removal
- Ducting kit
- Thermostat

## Standards

- UL Listed
- NEMA 12, NEMA 4 or NEMA 4X



## How vortex coolers create cold air

Compressed air is injected into the vortex tube at extremely high speeds and that creates a cyclone, or vortex, spinning a million revolutions per minute. Part of the air is forced to spin inward to the center and travels up a long tube where a valve turns the spinning column of air inside itself. The inside column of air gives up its heat to the outside column. The cold air is directed out the cold end of the Vortex Tube and the hot air is directed out the other end of the Vortex Tube. And since there are no moving parts there is little need for maintenance.



## Shipping Schedule

Same day 1 - 5 days 1 - 7 days 1 - 15 days 1 - 20 days

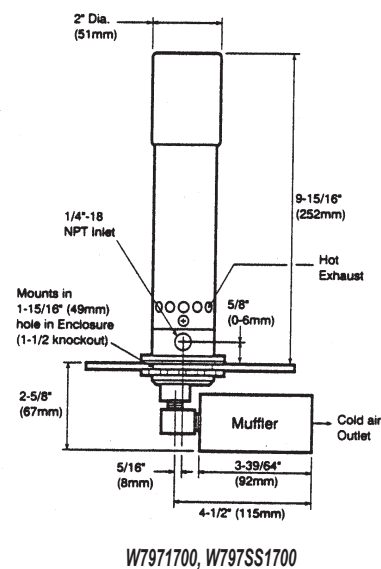
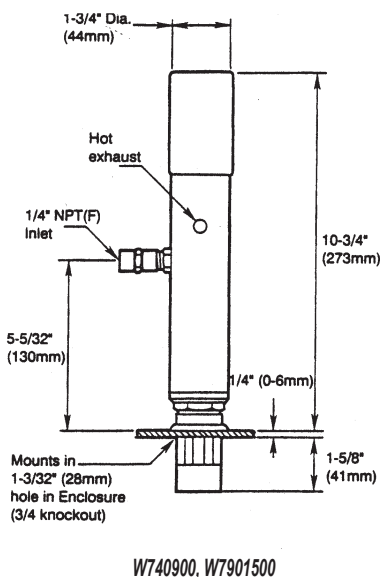
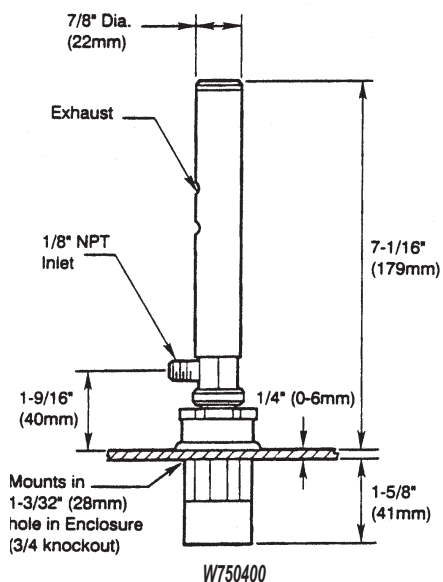
Color indicates shipping lead time in business days.

Part Number	Price	Description	Capacity BTU/H [KCAL/H]	Air Consumption SCFM [SLPM]
<b><u>W750400</u></b>	\$1,229.00	Wiegmann vortex cooler kit, 400 BTUH (117W) / 8 SCFM (227 SLPM), aluminum body. For NEMA 12 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	400 BTUH (117W)	8 SCFM (227 SLPM)
<b><u>W740900</u></b>	Retired	Wiegmann vortex cooler kit, 900 BTUH (264W) / 15 SCFM (425 SLPM), aluminum body. For NEMA 12 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	900 BTUH (264W)	15 SCFM (425 SLPM)
<b><u>W7901500</u></b>	Retired	Wiegmann vortex cooler kit, 1500 BTUH (440W) / 25 SCFM (708 SLPM), aluminum body. For NEMA 12 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	1500 BTUH (440W)	25 SCFM (708 SLPM)
<b><u>W7971700</u></b>	\$1,509.00	Wiegmann vortex cooler kit, 1700 BTUH (498W) / 25 SCFM (708 SLPM), aluminum body. For NEMA 4 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	1700 BTUH (498W)	25 SCFM (708 SLPM)
<b><u>W797SS1700</u></b>	\$2,781.00	Wiegmann vortex cooler kit, 1700 BTUH (498W) / 25 SCFM (708 SLPM), stainless steel body. For NEMA 4/4X enclosures. Thermostat, solenoid valve, distribution tube and filter included.	1700 BTUH (498W)	25 SCFM (708 SLPM)

# Vortex Cooler Kits



## Dimensions



# Enclosure Cooling – Selecting a Heat Exchanger

## Heat exchanger selection

To select the proper size heat exchanger, the worst-case conditions should be considered. For a heat exchanger to work, the ambient air temperature must be lower than the desired internal enclosure air temperature.

There are three main factors in choosing a heat exchanger for an uninsulated metal NEMA rated enclosure located indoors:

- Internal heat load
- Delta T
- Heat load transfer

### Internal Heat Load

Internal heat load is the heat generated by the components inside the enclosure. This can be determined by a few different methods. The preferred method is to add the maximum heat output specifications that the manufacturers list for all the equipment installed in the cabinet. This is typically given in Watts.

### Delta T ( $\Delta T$ )

Delta T = maximum allowable internal enclosure temperature °F – maximum outside ambient temperature °F.

### Heat Load Transfer

Heat load transfer is the heat lost (negative heat load transfer) or gained (positive heat load transfer) through the enclosure walls with the surrounding ambient air. This can be calculated by the following formulas:

Surface Area (sq. ft.) =  $2 [(H \times W) + (H \times D) + (W \times D)] / (144 \text{ sq. inches/sq. ft.})$

Note: Only include exposed surfaces of enclosure in calculations. Exclude surfaces such as a surface mounted to a wall.

Heat Load Transfer (W/°F) =  $0.22 \text{ W/°F sq. ft.} \times \text{surface area}$

Note: Use 0.22 Watts/°F sq. ft. for painted steel and non-metallic enclosures. Use 0.10 Watts/°F sq. ft. for stainless steel and bare aluminum enclosures.

### Cooling Capacity

Once you have determined your Internal Heat Load, the Heat Load Transfer and the Delta T, you can choose the proper size unit by calculating the needed cooling capacity.

Cooling Capacity (W/°F) =  $\text{Internal Heat Load} / \Delta T - \text{Heat Load Transfer}$

### Heat Exchanger Selection Example

A NEMA 12 Wiegmann N12302412 enclosure (30 in [762 mm] high x 24 in [610 mm] wide x 12 in [305 mm] deep) contains a GS3-4010 AC drive 10 HP 460 volt) that has a maximum allowable operating temperature of 104°F and is located in a warehouse that has a maximum outside ambient air temperature of 90°F.

Power to be dissipated is stated in the specifications of the GS3-4010 and is found to be 345 watts.

Internal heat load:

**Internal Heat Load = 345 Watts**

Delta T:

**$\Delta T (^{\circ}\text{F}) 104^{\circ}\text{F} - 90^{\circ}\text{F} = 14^{\circ}\text{F}$**

Heat load transfer:

**Surface Area (ft.2) =  $2 [(30 \times 24) + (30 \times 12) + (24 \times 12)] / 144 \text{ sq. inches} = 19 \text{ ft.2}$**   
**Heat Load Transfer =  $0.22 \times 19 \text{ ft}^2 = 4.2 \text{ Watts/}^{\circ}\text{F}$**

Cooling capacity:

**Cooling Capacity =  $345 \text{ Watts} / 14^{\circ}\text{F} - 4.2 \text{ Watts/}^{\circ}\text{F} = 20.4 \text{ Watts/}^{\circ}\text{F}$**

In this example, you are able to determine that a Stratus heat exchanger, with a capacity of at least 20.4 Watts/°F is needed, such as a TE30-030-17-04.

\*This selection procedure applies to metal and non-metal, uninsulated, sealed enclosures in indoor locations. This selection procedure gives the minimum required size; be careful not to undersize when purchasing.



# Air To Air Heat Exchangers



## Consider a Better Solution: Air to Air Heat Exchanger

- Always closed loop
- Low cost
- Easier to mount on only one side of your enclosure
- Energy efficient; uses no more power than a filtered fan system
- Filter-free; no diminished cooling capacity

## Applications

A closed loop cooling system which employs the heat pipe principle to exchange heat from an electrical enclosure to the outside.

## Construction

- Heat pipe technology
- Closed loop design

## Listings

- UL File: SA34086
- Made in USA



## Features

- All units are available in NEMA 4 and 4X
- Available in 120 VAC and 24 VDC
- Motors have a sealed overload protector
- Finned evaporator and condenser sections provide a closed loop
- Coil systems use aluminum end plates and baffles which improve conduction and reduce corrosion for longer life
- UL/cUL listed



Tall, compact, and deep body styles shown

## Air to Air Heat Exchange

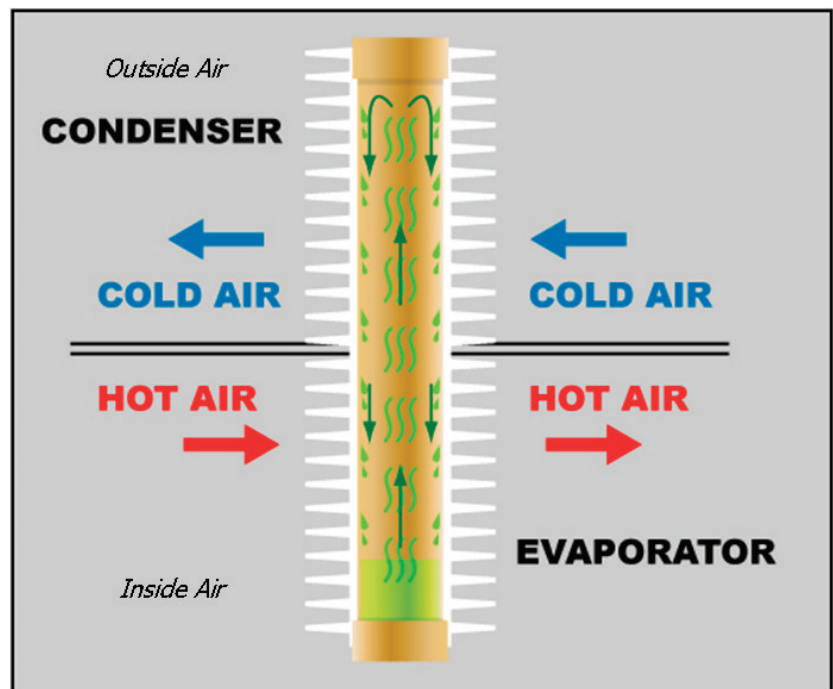
The Air to Air Heat Exchanger is a closed loop cooling system which employs the heat pipe principle to exchange heat from an electrical enclosure to the outside. Where ambient temperatures are suitable for heat pipes, they are the most efficient method of cooling as the waste heat is the engine which drives the system. The only power requirement is to operate two circulating fans or blowers.

Heat pipes have a liquid refrigerant under a partial vacuum inside sealed tubes. They operate with a phase change process which is much like that of mechanical air conditioning, but without the compressor. Each heat pipe has an evaporator section and a condenser section which are separated by a permanent baffle so as to provide a closed loop. The bottom of each heat pipe is in contact with heated air from the electrical enclosure. When the enclosure air reaches approximately 75° F, the refrigerant changes to vapor phase (boils) and the vapor (steam) rises to the top of the tube which is in contact with cooler outside (ambient) air.

When the outside air temperature is lower than the enclosure temperature, the refrigerant vapor gives up heat to the outside air and returns to the liquid phase. It then falls to the bottom and repeats the cycle endlessly so long as there is a negative temperature differential between the enclosure and outside. Heat pipes will not operate in reverse cycle so heat cannot be transferred from the ambient to the interior of the enclosure. Although the operation is self limiting, thermostatic control can be used to shut off the fans when not needed.

The Stratus design has a top-to-bottom enclosure air flow pattern with maximum separation of the inlet and outlet. This design pulls the hottest air from the top of the enclosure and returns the cooled air from the bottom of the heat pipe to the enclosure. The air flow on the ambient side is bottom in, top out, so that the hotter discharge air moves up and away rather than being recirculated.

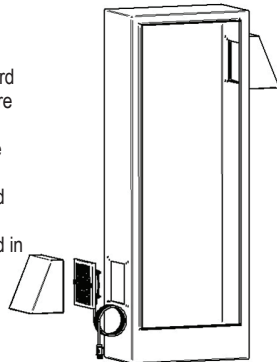
The units use aluminum end plates and baffles which improve conduction and reduce corrosion for longer life. The center aluminum baffle, which is swaged into the heat pipe coil, provides an air tight seal between the two air systems.



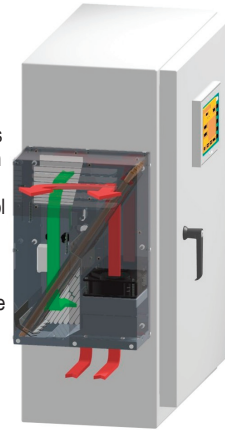
# Air To Air Heat Exchanger Specifications



In this image, a standard installation shows where the dirt and particulate will enter the enclosure and be pulled in by the fans on your drives and devices. Filters or not, contamination is invited in by this open loop approach.



In this image, a standard installation demonstrates the closed loop condition maintained by the Air to Air Heat Exchanger. Cool air inlet and outlet vents are completely covered by the heat exchanger. This provides NEMA type 4 or 4X.



## Stratus Air to Air Heat Exchangers General Specifications

Part Number	<a href="#">TE20-015-17-04</a>	<a href="#">TE20-015-17-4X</a>	<a href="#">TE20-015-24D-04</a>	<a href="#">TE20-015-24D-4X</a>	<a href="#">TE30-030-17-04</a>	<a href="#">TE30-030-17-4X</a>	<a href="#">TE30-030-24D-04</a>	<a href="#">TE30-030-24D-4X</a>	<a href="#">TE40-050-17-04</a>	<a href="#">TE40-050-17-4X</a>	<a href="#">TE40-050-24D-04</a>	<a href="#">TE40-050-24D-4X</a>
Price	\$1,800.00	\$1,881.00	\$1,853.00	\$1,933.00	\$1,860.00	\$1,996.00	\$1,912.00	\$2,043.00	\$2,433.00	\$2,530.00	\$2,560.00	\$2,657.00
Operating Voltage Range (V)	± 10%											
Inrush Current (Start Up Current) (A)	1.92		3.90		1.92		3.90		2.59		9.70	
Loading Current (Running Current) (A)	0.37		0.80		0.37		0.80		0.47		1.94	
SCCR (Short Circuit Current Rating) (A)	Refer to Footnote 1											
Recommended Circuit Protection Device Rating (A)	1.5		2.5		1.5		2.5		2		6	
VA Rating (W)	42		20		42		20		56		47	
Refrigerant Type (oz)	Methanol (0.41)		Methanol (0.41)		Methanol (0.81)				Methanol (1.22)			
Watts/°C (F°)	22 (12)				44 (24)				71.6 (40)			
Free Air Flow (CFM)	131		127		131		127		211		235	
Weight Without Packaging (lbs)	16				19				32			
Body Style	compact				deep				tall			
Material Type	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel
Voltage/Hz	120 VAC 50/60		24 VDC		120 VAC 50/60		24 VDC		120 VAC 50/60		24 VDC	
Maximum Ambient Temperature	160°F (71.1°C)											
Agency Approval	UL File: SA34086											

Notes: <sup>1</sup> SCCR rating is based on the SCCR rating for the circuit protection device installed in the panel / enclosure per UL50 and UL508a to protect the AC unit Typically 10KA for Fast Acting Fuses.

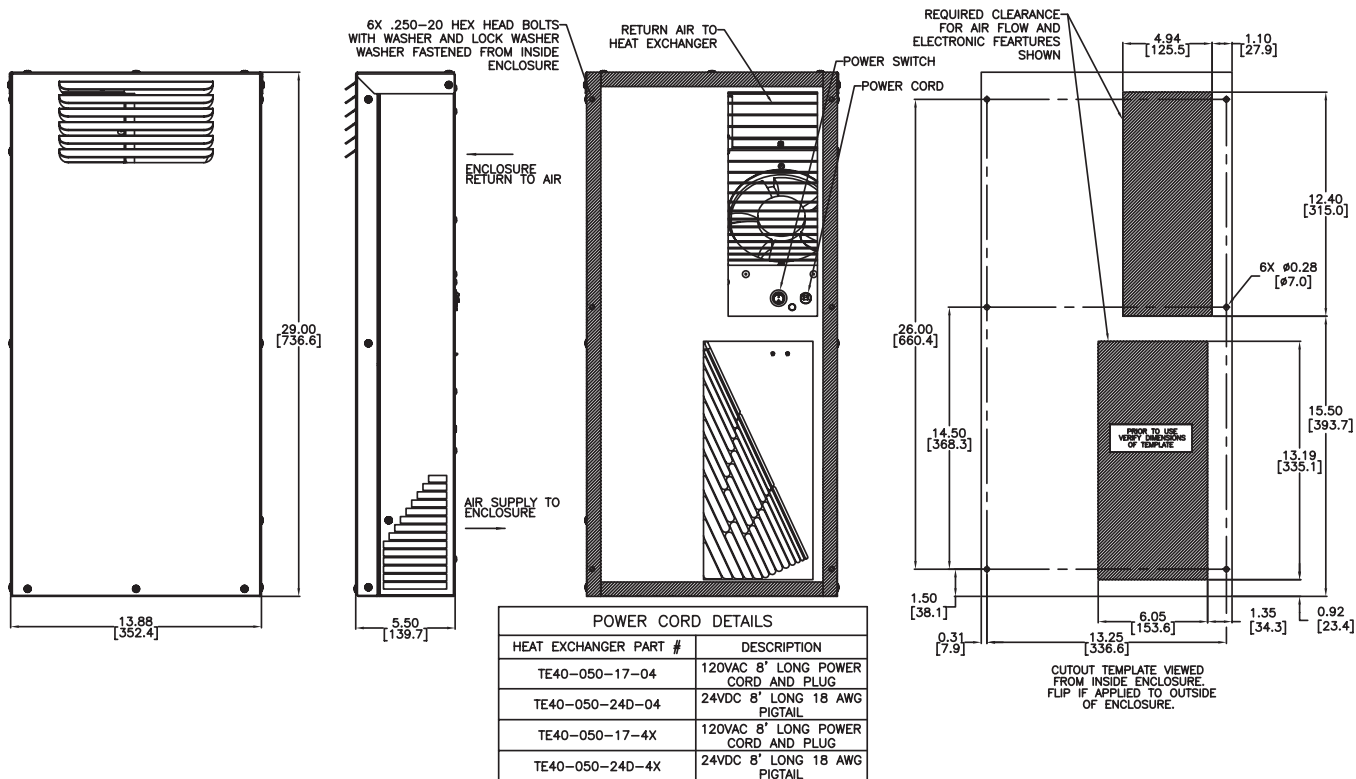
<sup>2</sup> Cold-rolled steel with ANSI-61 gray polyester powder coating inside and out.

<sup>3</sup> Fabricated from 16-gauge 304 stainless steel.

# Air To Air Heat Exchanger Dimensions

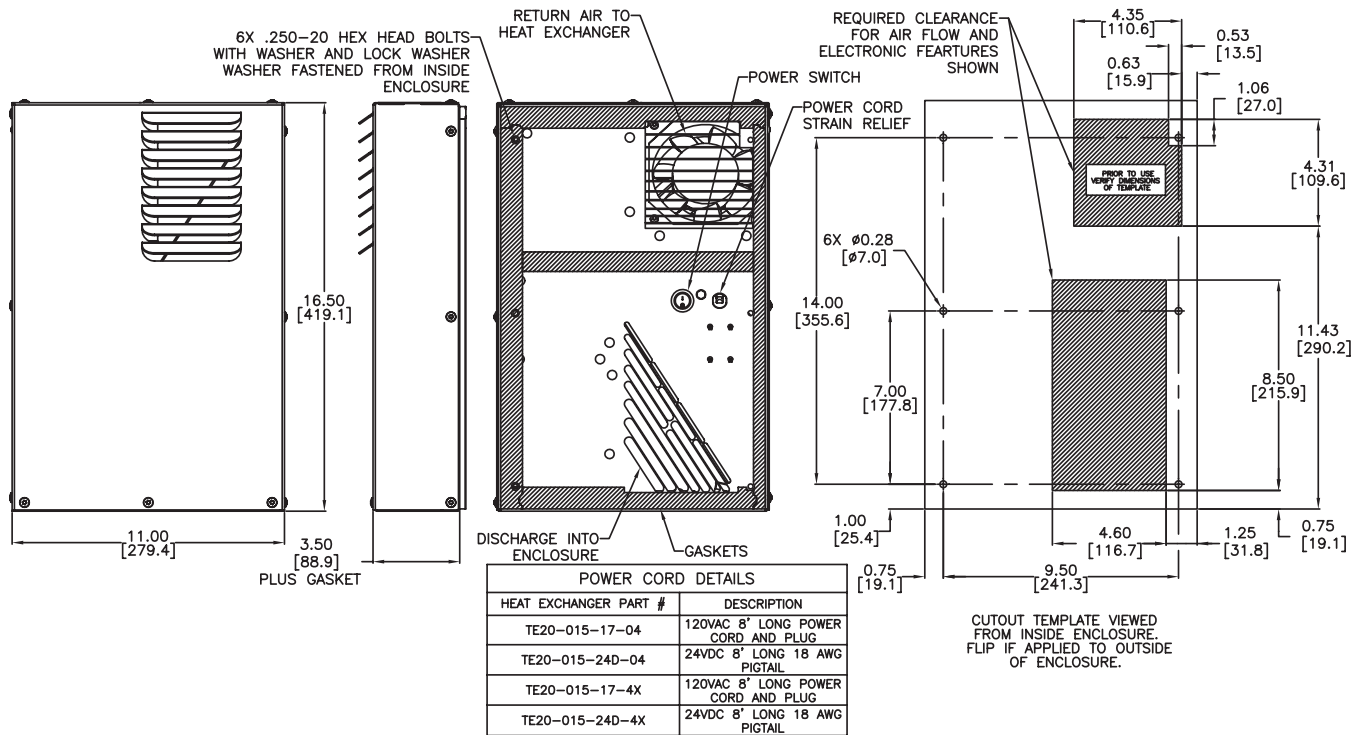


## Dimensions - Tall

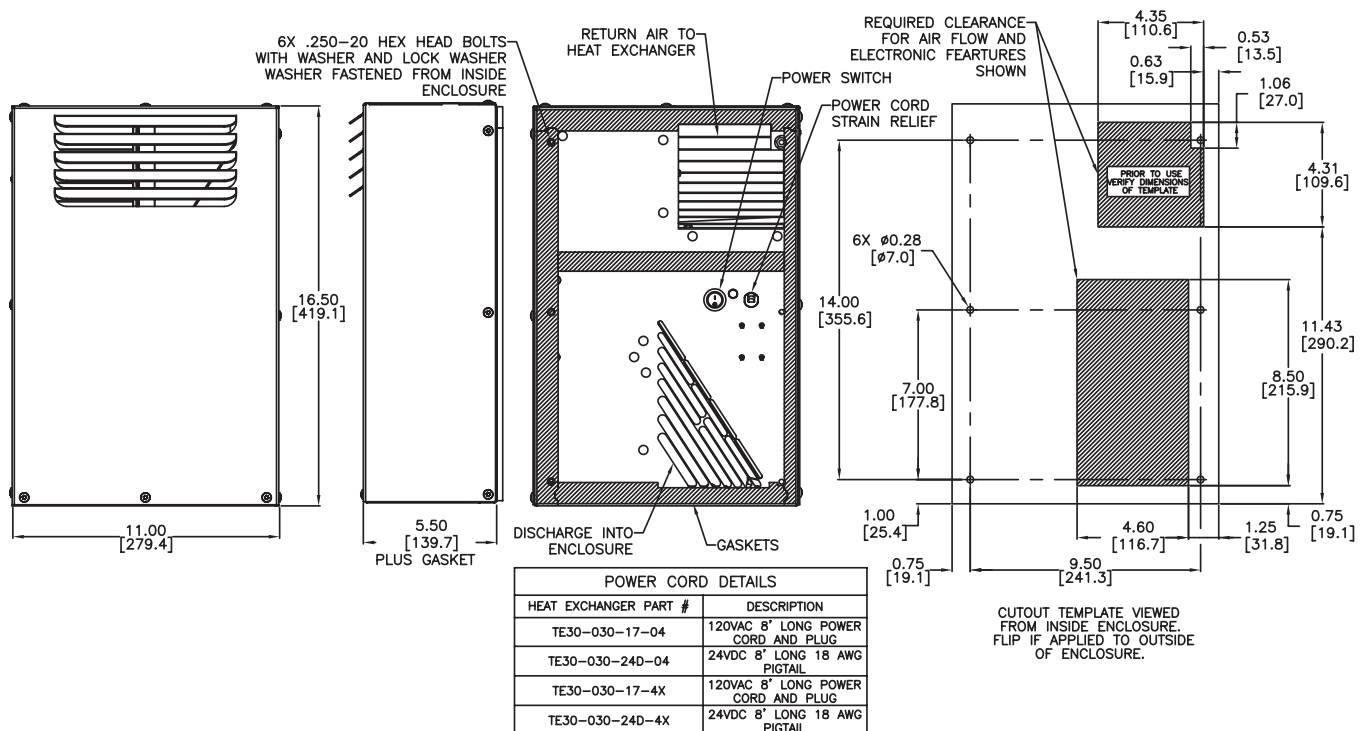


# Air To Air Heat Exchanger Dimensions

## Dimensions - Compact



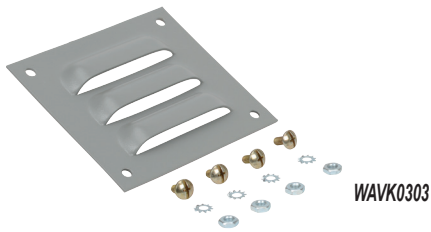
## Dimensions - Deep



# Louvers and Filters for Metal Enclosures

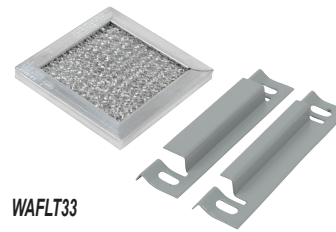


## Louver Vent Kits



Louver vents provide ventilation or cooling in metal enclosures where excessive moisture or excessive internal heat is a problem. These kits are fabricated from 14-gauge steel and include all hardware for mounting. Kits are easily field installed by making a cutout of the proper size and attaching the louver vent in place. Finish is ANSI 61 gray polyester powder finish over phosphatized surfaces or 316 stainless steel. Filter kit must be ordered separately.

## Filter Kits for Louver Vent Kits



Aluminum filters are good for stopping dust and dirt from penetrating the enclosures. These filters are designed to mount behind WAVK series louver vent kits. Mounting holes on filter brackets align with mounting holes on louver kits. Kit consists of aluminum filter, brackets and all necessary hardware for installation. Louver kit must be ordered separately.

### Shipping Schedule

Same day 1 - 5 days 1 - 7 days 1 - 15 days 1 - 20 days

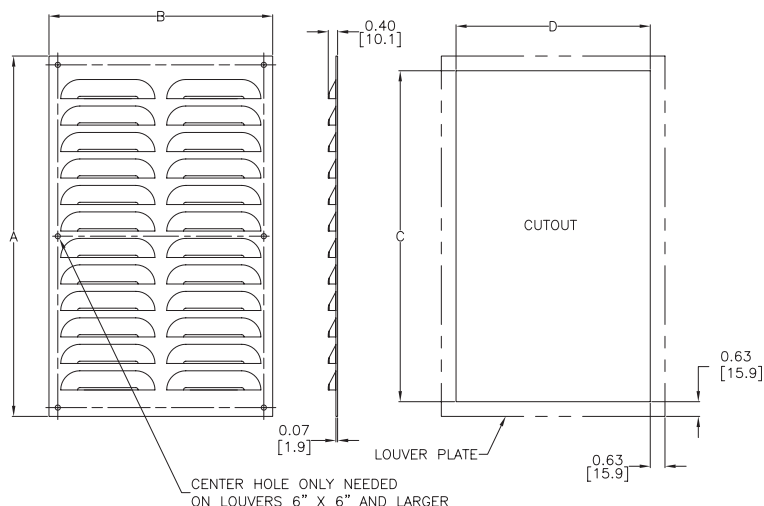
Color indicates shipping lead time in business days.

### Louver Vent and Filter Kits

Louver Kit 14-gauge Steel	Price	Louver Kit 316 SS	Price	Filter Kit	Price	No. of Louvers	No. of Louvers Rows	Louver Length in [mm]	A in [mm]	B in [mm]	C in [mm]	D in [mm]
<a href="#">WAVK0808</a>	Retired	<a href="#">WAVK0203SSA</a>	Retired	—	—	3	1	2.00 [51]	3.25 [83]	3.25 [83]	2.00 [51]	2.00 [51]
<a href="#">WAVK0303</a>	\$29.00	<a href="#">WAVK0303SSA</a>	\$121.00	<a href="#">WAFLT33</a>	\$35.50	3	1	3.00 [76]	3.87 [98]	4.50 [114]	2.62 [67]	3.25 [83]
<a href="#">WAVK0304</a>	\$30.50	<a href="#">WAVK0304SSA</a>	\$126.00	<a href="#">WAFLT34</a>	\$35.50	4	1	3.00 [76]	4.75 [121]	4.50 [114]	3.50 [89]	3.25 [83]
<a href="#">WAVK0404</a>	\$33.00	<a href="#">WAVK0404SSA</a>	\$138.00	<a href="#">WAFLT44</a>	\$36.50	4	1	4.00 [102]	5.62 [143]	5.50 [140]	4.37 [111]	4.25 [108]
<a href="#">WAVK0604</a>	Retired	<a href="#">WAVK0604SSA</a>	Retired	<a href="#">WAFLT64</a>	Retired	8	1	3.00 [76]	5.62 [143]	7.50 [191]	4.37 [111]	6.25 [159]
<a href="#">WAVK0606</a>	\$39.50	<a href="#">WAVK0606SSA</a>	\$165.00	<a href="#">WAFLT66</a>	\$40.00	12	1	3.00 [76]	7.87 [200]	7.50 [191]	6.62 [168]	6.25 [159]
<a href="#">WAVK0806</a>	Retired	<a href="#">WAVK0806SSA</a>	Retired	<a href="#">WAFLT86</a>	Retired	12	2	4.00 [102]	8.18 [208]	9.50 [241]	6.93 [176]	8.25 [210]
<a href="#">WAVK0808</a>	Retired	<a href="#">WAVK0808SSA</a>	Retired	<a href="#">WAFLT88</a>	Retired	16	2	4.00 [102]	10.56 [268]	9.50 [241]	9.31 [236]	8.25 [210]
<a href="#">WAVK0812</a>	Retired	<a href="#">WAVK0812SSA</a>	Retired	<a href="#">WAFLT812</a>	Retired	24	2	4.00 [102]	15.31 [389]	9.50 [241]	14.06 [357]	8.25 [210]

Note: Dimensions in inches [millimeters].

## Dimensions



# Enclosure Heating and Heater Selection

## Why Heat an Enclosure?

Today's miniaturization of enclosure components results in high packing densities, which in turn results in higher temperatures within the enclosure. These high temperatures are harmful to electronic components. In response, cooling systems have become standard in many applications. However, just as critical and widely underestimated, are failures caused by the formation of moisture.

Under certain climatic conditions, moisture can build up not only in outdoor or poorly insulated enclosures, but also in highly protected and well-sealed enclosures.

## Moisture and Failure

Moisture, especially when combined with aggressive gases and dust, causes atmospheric corrosion and can result in the failure of components such as circuit breakers, busbars, relays, integrated circuit boards and transformers. The greatest danger lies in conditions where electronic equipment is exposed to relatively high air humidity or extreme variations in temperature, such as day-and-night operation or outdoor installation. Failure of components in such cases is usually caused by changing contact resistances, flashovers, creepage currents or reduced insulation properties.

## Eliminate Moisture

Moisture and corrosion will remain low if relative air humidity stays below 60%. However, relative humidity above 65% will significantly increase moisture and corrosion problems. This can be prevented by keeping the environment inside an enclosure at a temperature as little as 9°F (5°C) higher than that of the ambient air. Constant temperatures are a necessity to guarantee optimal operating conditions. Continuous temperature changes not only create condensation but they reduce the life expectancy of electronic components significantly. Electronic components can be protected by cooling during the day and heating at night.

## Thermal Management

Modern enclosure heaters are designed to protect against condensation. They heat the air inside enclosures, preventing water vapor from condensing on components while providing the greatest possible air circulation and low energy consumption.

Other heating element technology improvements include:

- Longer operating life
- Greater energy efficiencies
- Quick wiring options
- Easier mounting
- Fan heaters should be considered for larger enclosures to ensure that the entire enclosure is heated uniformly

## Heater Location

Ideally, most heaters will perform optimally when mounted near the bottom of an enclosure and used in conjunction with a control device, thermostat, and/or hygrostat. The control device may be a separate device, or it may be integral to the heater. With the controller located in an area of the cabinet that is representative of the average temperature or humidity requirement, the heater should then be placed in a position near the bottom of the enclosure. If a separate control device is used, the heater should not be located directly beneath the controller to ensure that the controller is not influenced by direct heat from the heater.

## Heater Calculation

Follow Steps 1-5 to determine the heating requirement of an enclosure (US units - left column, metric - right)

STEP 1: Determine the Surface Area (A) of your enclosure which is exposed to open air.

Enclosure Dimensions:

height = \_\_\_\_\_ feet \_\_\_\_\_ meters

width = \_\_\_\_\_ feet \_\_\_\_\_ meters

depth = \_\_\_\_\_ feet \_\_\_\_\_ meters

Choose Mounting Option from next page, and calculate the surface area as indicated

A = \_\_\_\_\_ ft<sup>2</sup> or \_\_\_\_\_ m<sup>2</sup>

STEP 2: Choose the Heat Transmission Coefficient (k) for your enclosure's material of construction.

painted steel = 0.511 W/(ft<sup>2</sup>K) 5.5 W/(m<sup>2</sup>K)

stainless steel = 0.344 W/(ft<sup>2</sup>K) 3.7 W/(m<sup>2</sup>K)

aluminum = 1.115 W/(ft<sup>2</sup>K) 12 W/(m<sup>2</sup>K)

plastic or insulated stainless = 0.325 W/(ft<sup>2</sup>K) 3.5 W/(m<sup>2</sup>K)

k = \_\_\_\_\_ W/(ft<sup>2</sup>K) or \_\_\_\_\_ W/(m<sup>2</sup>K)

STEP 3: Determine the Temperature Differential (ΔT).

A. Desired enclosure interior temp. = \_\_\_\_°F \_\_\_\_°C

B. Lowest ambient (outside) temp. = \_\_\_\_°F \_\_\_\_°C

Subtract B from A = Temp. diff. (ΔT) = \_\_\_\_°F \_\_\_\_°C

For these calculations, ΔT must be in° Kelvin (K). Therefore, divide ΔT (°F) by 1.8. ΔT = \_\_\_\_\_ K

STEP 4: Determine Heating Power (PV), if any (generated from existing components, i.e. transformer).

PV = \_\_\_\_\_ W or \_\_\_\_\_ W

STEP 5: Calculate the Required Heating Power (PH) for your enclosure based on the above values.

If enclosure is located inside:

PH = (A x k x ΔT) - PV = \_\_\_\_\_ W

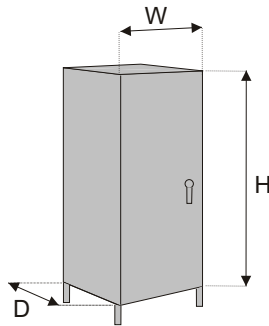
If enclosure is located outside:

PH = 2 x (A x k x ΔT) - PV = \_\_\_\_\_ W

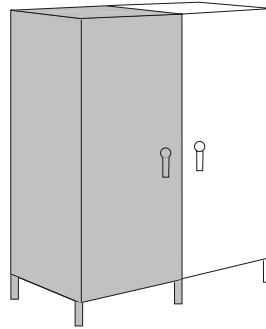


# Enclosure Mounting Types and Surface Area Calculations

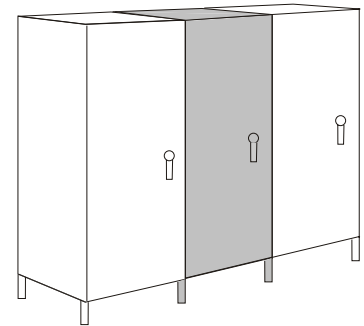
## 1. Free-Standing



$$\text{Area (A)} = 1.8\text{ft}^3 [0.05\text{m}^3] (H \times W) + 1.8 (H \times D) + 1.8\text{ft}^3 [0.05\text{m}^3] (W \times D)$$

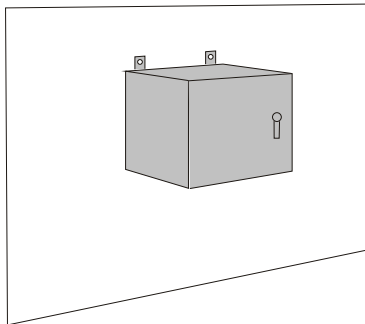


$$\text{Area (A)} = 1.8\text{ft}^3 [0.05\text{m}^3] (H \times W) + 1.4 (H \times D) + 1.8\text{ft}^3 [0.05\text{m}^3] (W \times D)$$

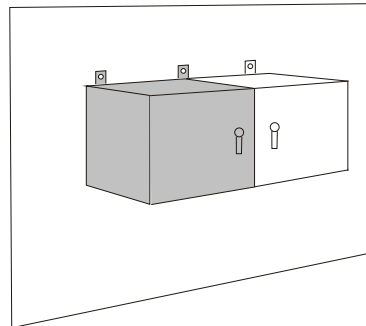


$$\text{Area (A)} = 1.8\text{ft}^3 [0.05\text{m}^3] (H \times W) + (H \times D) + 1.8\text{ft}^3 [0.05\text{m}^3] (W \times D)$$

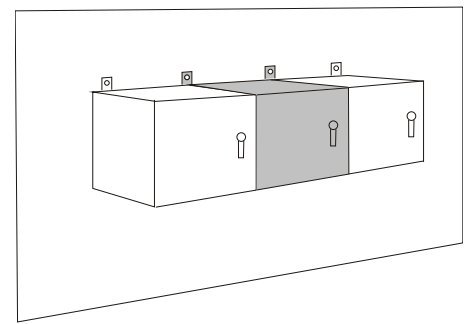
## 2. Wall-Mounted



$$\text{Area (A)} = 1.4\text{ft}^3 [0.04\text{m}^3] (H \times W) + 1.8 (H \times D) + 1.8\text{ft}^3 [0.05\text{m}^3] (W \times D)$$

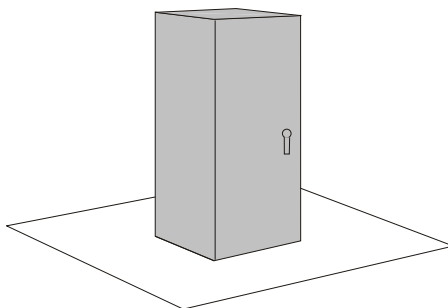


$$\text{Area (A)} = 1.4\text{ft}^3 [0.04\text{m}^3] (H \times W) + 1.4 (H \times D) + 1.8\text{ft}^3 [0.05\text{m}^3] (W \times D)$$

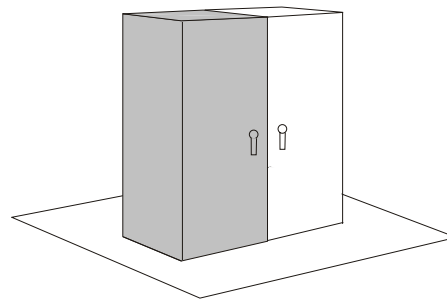


$$\text{Area (A)} = 1.4\text{ft}^3 [0.04\text{m}^3] (H \times W) + (H \times D) + 1.8\text{ft}^3 [0.05\text{m}^3] (W \times D)$$

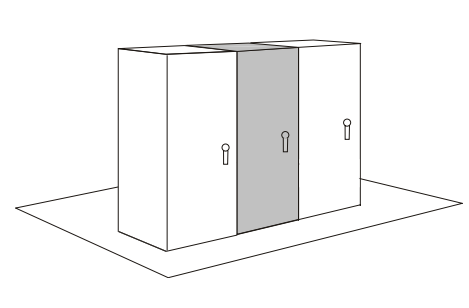
## 3. Ground



$$\text{Area (A)} = 1.8\text{ft}^3 [0.05\text{m}^3] (H \times W) + 1.8 (H \times D) + 1.4\text{ft}^3 [0.04\text{m}^3] (W \times D)$$

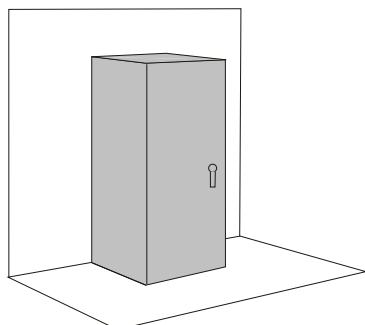


$$\text{Area (A)} = 1.8\text{ft}^3 [0.05\text{m}^3] (H \times W) + 1.4 (H \times D) + 1.4\text{ft}^3 [0.04\text{m}^3] (W \times D)$$

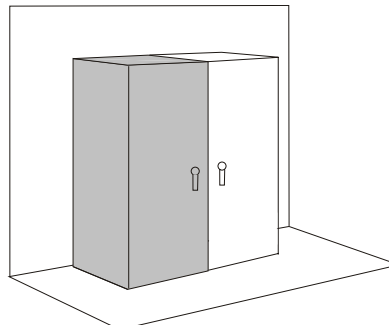


$$\text{Area (A)} = 1.8\text{ft}^3 [0.05\text{m}^3] (H \times W) + (H \times D) + 1.4\text{ft}^3 [0.04\text{m}^3] (W \times D)$$

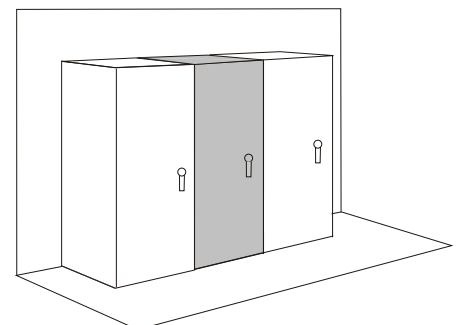
## 4. Ground and Wall



$$\text{Area (A)} = 1.4\text{ft}^3 [0.04\text{m}^3] (H \times W) + 1.8 (H \times D) + 1.4\text{ft}^3 [0.04\text{m}^3] (W \times D)$$



$$\text{Area (A)} = 1.4\text{ft}^3 [0.04\text{m}^3] (H \times W) + 1.4 (H \times D) + 1.4\text{ft}^3 [0.04\text{m}^3] (W \times D)$$



$$\text{Area (A)} = 1.4\text{ft}^3 [0.04\text{m}^3] (H \times W) + (H \times D) + 1.4\text{ft}^3 [0.04\text{m}^3] (W \times D)$$



# Adjustable Thermostats



[111000-00](#), [111000-01](#), [111000-02](#),  
[111009-00](#), and [111009-01](#)



[111010-00](#), [111010-01](#), [111010-02](#),  
[111019-00](#), and [111019-01](#)

## Applications

### Normally Closed (N.C.)

Normally Closed adjustable thermostats have a red adjustment dial and contacts that open when the air temperature rises above the setpoint. Uses may include regulating heaters or switching signal devices when temperature falls below the setpoint value.

### Normally Open (N.O.)

Normally Open adjustable thermostats have a blue adjustment dial and contacts that close when the air temperature rises above the setpoint. Uses may include regulating cooling devices (heat exchangers, filter fans vortex coolers, etc), or switching signal devices when temperature rises above the setpoint value.

## Features

- Compact design
- Wide adjustment range
- Color coded temperature dials
- DIN rail mounting
- Push-in terminals for tool-free installation
- For use up to 16,400 ft. [5000 m] altitude



## General Specifications

<b>Switching Difference</b>	12.6°F [7K]
<b>Switching Tolerance</b>	±7°F [ ±4K]
<b>Sensor Element</b>	Thermostatic bimetal
<b>Contact Type</b>	Snap-action contact
<b>Service Life</b>	>100,000 cycles
<b>Max. Inrush Current</b>	AC 16A for 10 sec.
<b>Max. Operating Voltage</b>	250 VAC
<b>Connection</b>	2-pole terminal, push-in terminal 14 AWG [2.5mm] max. solid/stranded wire
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Variable
<b>Operating / Storage Temperature</b>	-49 to 176°F [-45 to 80°C]
<b>Weight</b>	0.09 lb [40 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, CSA, VDE, EAC, UL Recognized File No. E164102; RoHS 2 compliant

Note: When using stranded wire, wire-end ferrules (square or trapezoid crimp) must be used.

## Adjustable Thermostats

Part Number	Price	Contact	Setting Range	Max. Switching Capacity	Drawing Link
<a href="#">111000-00</a>	\$21.00	N.C.	0 to 60°C	15A resistive / 2A inductive at 120 VAC, 10A resistive / 2A inductive at 250 VAC, 30W DC	<a href="#">PDF</a>
<a href="#">111000-01</a>	\$21.00		-10 to 50°C		<a href="#">PDF</a>
<a href="#">111000-02</a>	\$21.00		20 to 80°C	3A resistive / 2A inductive at 120 VAC, 3A resistive / 2A inductive at 250 VAC, 30W DC	<a href="#">PDF</a>
<a href="#">111009-00</a>	\$21.00		32 to 140°F	15A resistive / 2A inductive at 120 VAC, 10A resistive / 2A inductive at 250 VAC, 30W DC	<a href="#">PDF</a>
<a href="#">111009-01</a>	\$21.00		14 to 122°F		<a href="#">PDF</a>
<a href="#">111010-00</a>	\$21.00	N.O.	0 to 60°C		<a href="#">PDF</a>
<a href="#">111010-01</a>	\$21.00		-10 to 50°C	3A resistive / 2A inductive at 120 VAC, 3A resistive / 2A inductive at 250 VAC, 30W DC	<a href="#">PDF</a>
<a href="#">111010-02</a>	\$21.00		20 to 80°C		<a href="#">PDF</a>
<a href="#">111019-00</a>	\$21.00		32 to 140°F		<a href="#">PDF</a>
<a href="#">111019-01</a>	\$21.00		14 to 122°F	15A resistive / 2A inductive at 120 VAC, 10A resistive / 2A inductive at 250 VAC, 30W DC	<a href="#">PDF</a>

# Small Adjustable Thermostats



011409-00 and 011420-00

## Applications

### Normally Closed (N.C.)

Normally Closed adjustable thermostats have a red adjustment dial and contacts that open when the air temperature rises above the setpoint. Uses may include regulating heaters or switching signal devices when temperature falls below the setpoint value.

### Normally Open (N.O.)

Normally Open adjustable thermostats have a blue adjustment dial and contacts that close when the air temperature rises above the setpoint. Uses may include regulating cooling devices (heat exchangers, filter fans vortex coolers, etc), or switching signal devices when temperature rises above the setpoint value.



011479-00 and 011580-00

## Features

- Compact design
- Wide adjustment range
- Color coded temperature dials
- DIN rail mounting



Small Adjustable Thermostats	
<b>Switching Difference</b>	12.6°F [7K]
<b>Switching Tolerance</b>	±7°F [ ±4K]
<b>Sensor Element</b>	Thermostatic bimetal
<b>Contact Type</b>	Snap-action contact
<b>Contact Resistance</b>	<10 mΩ
<b>Service Life</b>	>100,000 cycles
<b>Max. Switching Capacity</b>	15A resistive / 2A inductive @ 120VAC 10A resistive / 2A inductive @ 250VAC DC 30W (24-72 VDC)
<b>Max. Inrush Current</b>	AC 16A for 10 sec.
<b>Minimum Load</b>	20 mA (all voltages)
<b>Connection</b>	2-pole terminal, 0.5 Nm max. clamping torque 14 AWG [2.5mm] max. solid wire 16 AWG [1.5 mm²] max. stranded wire with wire end ferrule
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating / Storage Temperature</b>	-49 to 176°F [-45 to 80°C]
<b>Weight</b>	0.09 lb [40 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, CSA, VDE, EAC, UL Recognized File No. E164102, RoHS 2 compliant

Small Adjustable Thermostats			
Part Number	Price	Contact	Setting Range
<a href="#">011409-00</a>	Retired	N.C.	32 to 140°F
<a href="#">011469-00</a>	Retired		0 to 60°C
<a href="#">011420-00</a>	Retired		-10 to 50°C
<a href="#">011570-00</a>	Retired		-15 to 45°C
<a href="#">011419-00</a>	Retired	N.O.	32 to 140°F
<a href="#">011479-00</a>	Retired		0 to 60°C
<a href="#">011580-00</a>	Retired		20 to 80°C

Notes: Recommended replacement for 011419-00 is 111019-00.

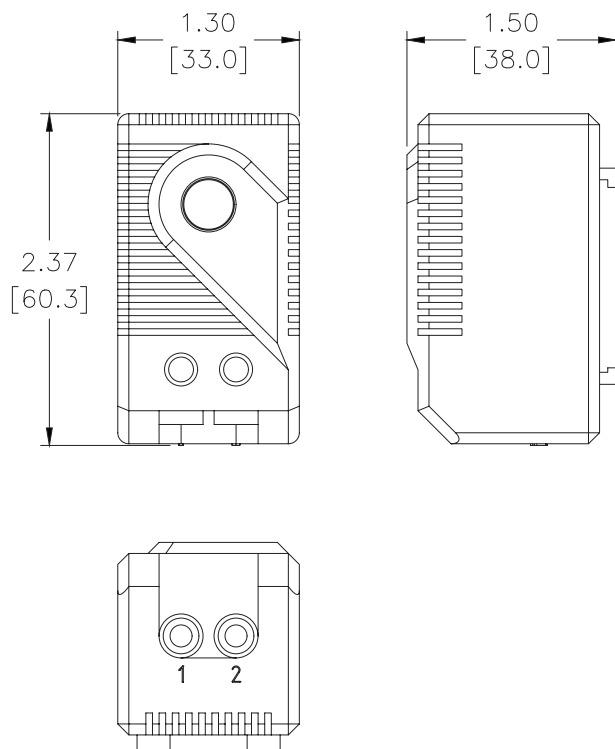
Recommended replacement for 011420-00 is 111000-01 or 111009-01.

Recommended replacement for 011469-00 is 111000-00.

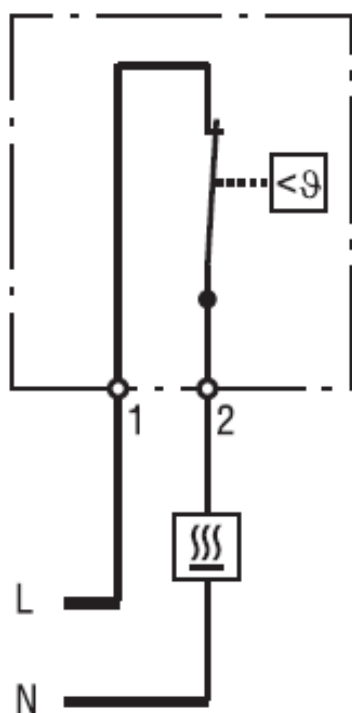
# Small Adjustable Thermostats



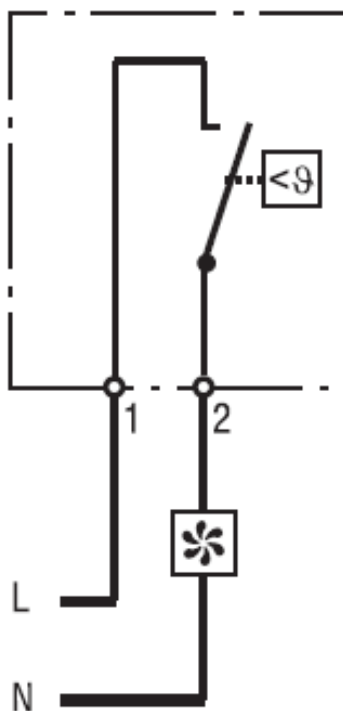
## Dimensions



## Wiring Diagrams



NC (red)



NO (blue)

# Tamperproof Thermostats



011600-00



011610-02



011630-00

## Applications

### Normally Closed (N.C.)

Normally Closed tamperproof (pre-set) thermostats have a red module and contacts that open when the air temperature rises above the setpoint. Uses may include regulating heaters or switching signal devices when temperature has fallen below the setpoint value.

### Normally Open (N.O.)

Normally Open tamperproof (pre-set) thermostats have a blue module and contacts that close when the air temperature rises above the setpoint. Uses may include regulating cooling devices (heat exchangers, filter fans, vortex coolers, etc) or switching signal devices when temperature exceeds the setpoint value.

## Features

- Compact design
- Fixed set points
- Color coded modules
- DIN rail mounting



## Tamperproof Thermostats Specifications

<b>Sensor Element</b>	Thermostatic bimetal
<b>Contact Type</b>	Snap-action Contact
<b>Contact Resistance</b>	<20 mΩ
<b>Service Life</b>	>100,000 cycles
<b>Max. Switching Capacity</b>	10A resistive / 2A inductive @ 120VAC 5A resistive / 1.6 A inductive @ 240VAC DC 30W (24-72 VDC)
<b>Max. Inrush Current</b>	AC 16A for 10 sec.
<b>Minimum Load</b>	20 mA (all voltages)
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating Temperature</b>	-40 to 176°F [-40 to 80°C]
<b>Storage Temperature</b>	-49 to 176°F [-45 to 80°C]
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, VDE, EAC, UL Recognized File No. E164102, RoHS 2 compliant
Note: Tolerance is plus or minus (±) the specified number.	

# Tamperproof Thermostats



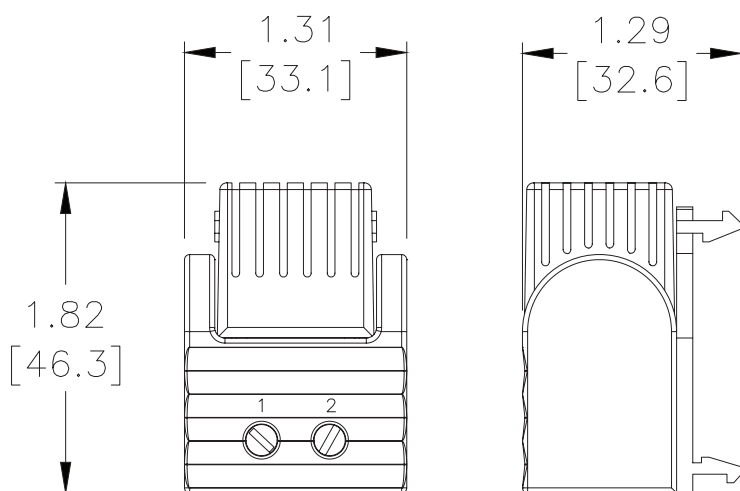
Tamperproof Thermostats							
Type	Part Number	Price	Contact	Switch-off	Switch-on	Connection	Weight
Single Thermostats	<a href="#"><u>011600-00</u></a>	\$16.50	N.C.	59 ± 9°F [15 ± 5°C]	41±9°F [5±5°C]	2-pole terminal for 14 AWG max solid or stranded wire	0.05 lb [23 g]
	<a href="#"><u>011600-01</u></a>	\$16.50	N.C.	77 ± 9°F [25 ± 5°C]	59±9°F [15±5°C]		
	<a href="#"><u>011610-00</u></a>	\$16.50	N.O.	104 ± 12.6°F [40 ± 7°C]	122±11°F [50±6°C]		
	<a href="#"><u>011610-02</u></a>	\$16.50	N.O.	77 ± 12.6°F [25 ± 7°C]	95±11°F [35±6°C]		
Dual Thermostats	<a href="#"><u>011630-00</u></a>	\$31.00	N.C.	59 ± 9°F [15 ± 5°C]	41±9°F [5±5°C]	4-pole terminal for 14 AWG max solid or 16 AWG max stranded wire	0.08 lb [40 g]
			N.O.	104 ± 12.6°F [40 ± 7°C]	122±11°F [50±6°C]		
	<a href="#"><u>011640-00</u></a>	\$31.00	N.O.	104 ± 12.6°F [40 ± 7°C]	122±11°F [50±6°C]		
			N.O.	122 ± 12.6°F [50 ± 7°C]	140±11°F [60±6°C]		
	<a href="#"><u>011630-02</u></a>	\$31.00	N.C.	59 ± 9°F [15 ± 5°C]	41±9°F [5±5°C]		
			N.O.	77 ± 12.6°F [25 ± 7°C]	95±11°F [35±6°C]		
Note: Tolerance is plus or minus (±) the specified number.							

# Tamperproof Thermostats

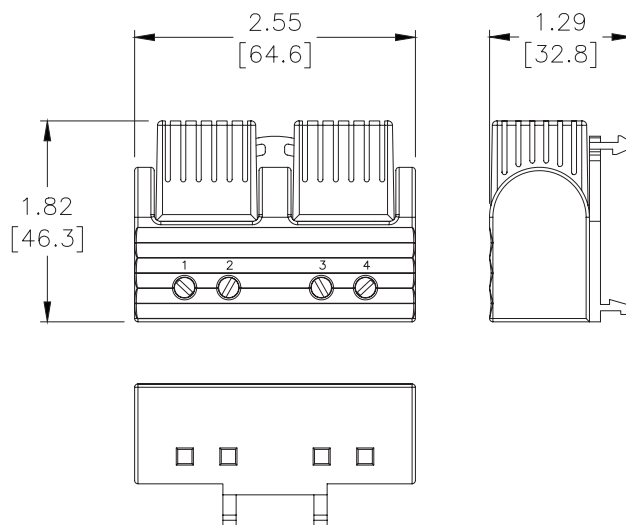


## Dimensions

### Single Thermostats

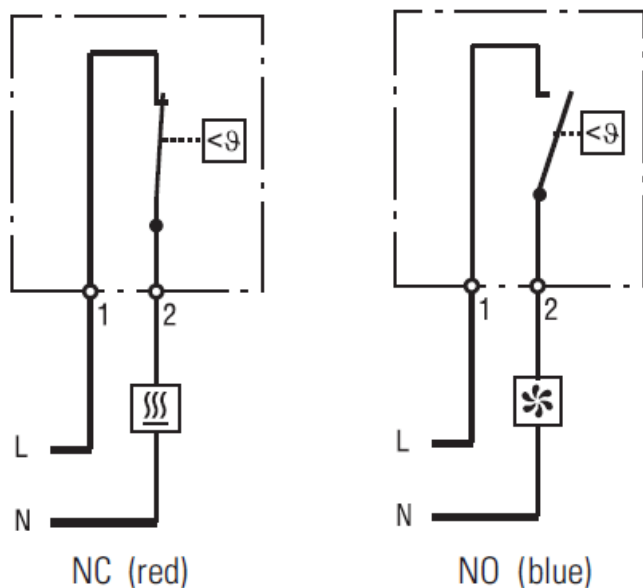


### Dual Thermostats

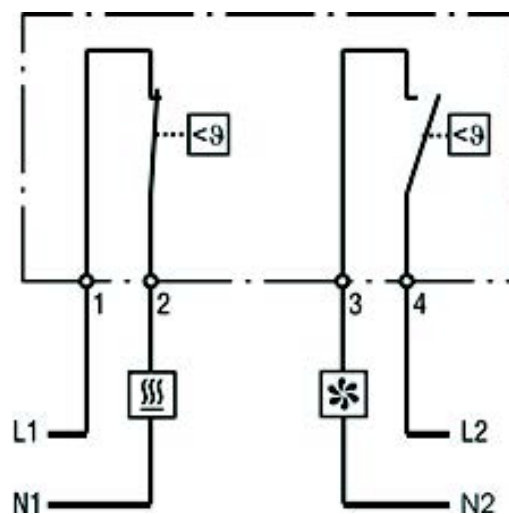


## Wiring Diagrams

### Single Thermostats - All Models



### Dual Thermostats - NC/NO Models



# Compact Thumbwheel Thermostats



011159-00 and 011150-00



011169-00 and 011160-00

## Applications

### Normally Closed (N.C.)

Normally Closed thermostats have a red adjustment thumbwheel and contacts that open when the air temperature rises above the setpoint. Uses may include regulating heaters or switching signal devices when temperature falls below the setpoint value.

### Normally Open (N.O.)

Normally Open thermostats have a blue adjustment thumbwheel and contacts that close when the air temperature rises above the setpoint. Uses may include regulating cooling devices (heat exchangers, filter fans, or vortex coolers, etc) or for include switching signal devices when temperature rises above the maximum setpoint.

## Features

- Compact design
- Adjustable thumbwheel setting
- DIN rail mounting
- SPST regulator with small hysteresis
- Housing design ensures optimized circulation around sensor element



## Compact Thumbwheel Thermostats Specifications

<b>Switching Difference</b>	7°F [4K]
<b>Switching Tolerance</b>	±5.4°F [±3K]
<b>Sensor Element</b>	Thermostatic bimetal
<b>Contact Type</b>	Snap-action contact
<b>Contact Resistance</b>	<10 mΩ
<b>Service Life</b>	>100,000 cycles
<b>Max. Switching Capacity</b>	15A resistive / 2A inductive @ 120 VAC 10A resistive / 2A inductive @ 250 VAC DC 30W (24-72 VDC)
<b>Max. Inrush Current</b>	AC 16A for 10 sec.
<b>Minimum Load</b>	20mA (all voltages)
<b>Connection</b>	2-pole terminal, 1 Nm max. clamping torque 14 AWG [2.5mm] max. solid wire or stranded wire with wire end ferrule
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating / Storage Temperature</b>	-49 to 176°F [-45 to 80°C]
<b>Weight</b>	1.8 oz [50 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	Recognized File No. E164102, CE, VDE, EAC, RoHS 2 compliant

## Compact Thumbwheel Thermostats

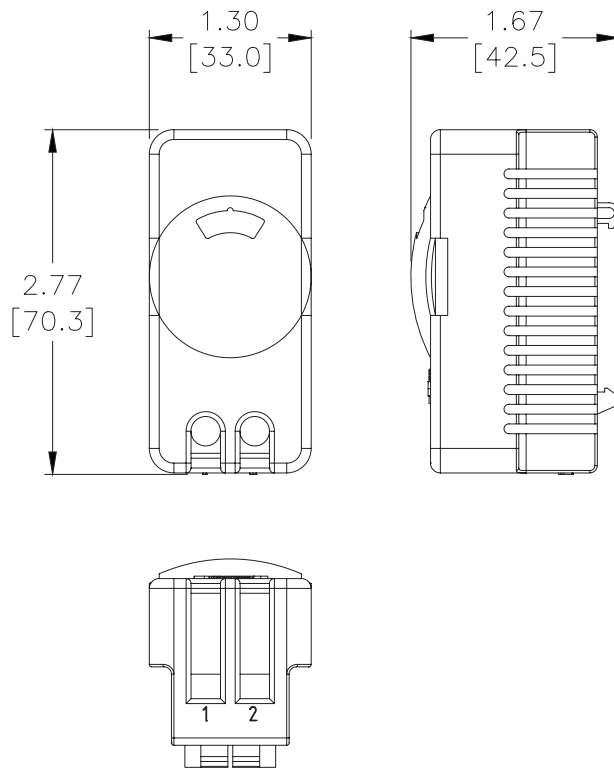
Part Number	Price	Contact	Setting Range
<a href="#">011159-00</a>	\$28.50	N.C.	32 to 140°F
<a href="#">011150-00</a>	\$28.50		0 to 60°C
<a href="#">011169-00</a>	\$28.50	N.O.	32 to 140°F
<a href="#">011160-00</a>	\$28.50		0 to 60°C



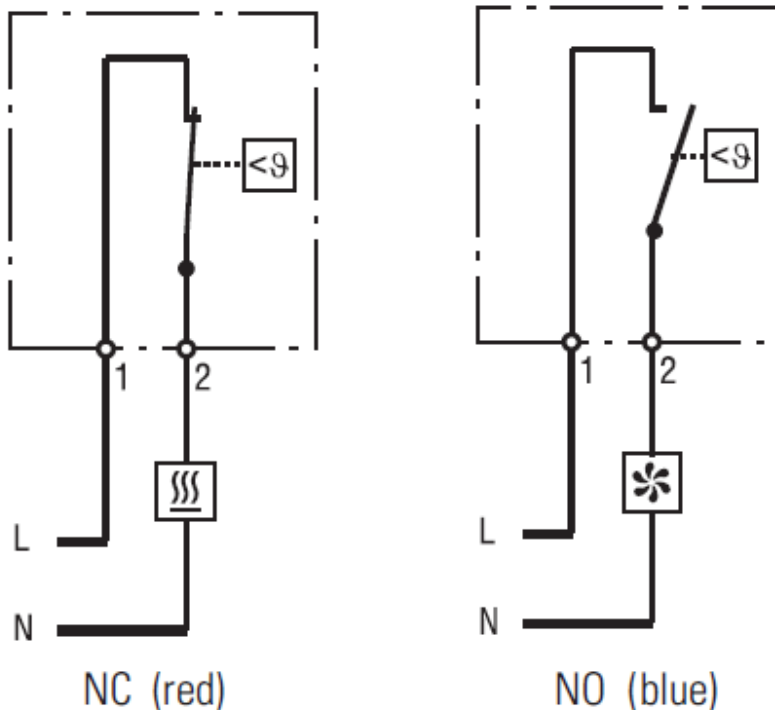
# Compact Thumbwheel Thermostats



## Dimensions



## Wiring Diagram



# Dual Adjustable Thermostats



## Applications

This unit houses two separate thermostats, allowing independent control of heating, cooling or other equipment.

### Normally Closed (N.C.)

Normally Closed (N.C.) thermostats have a red adjustment dial and contacts that open when the air temperature rises above the setpoint. N.C. thermostats are used for regulating heaters or for switching signal devices when the temperature falls below the setpoint temperature.

### Normally Open (N.O.)

Normally Open (N.O.) thermostats have a blue adjustment dial and contacts that close when the air temperature rises above the setpoint. N.O. thermostats are used for regulating cooling devices (heat exchangers, filter fans, vortex coolers, etc) or for switching signal devices when the temperature rises above the setpoint temperature.

## Features

- N.C. and N.O. in one unit
- Compact design
- Separate adjustable temperatures
- Color coded temperature dials
- DIN rail mounting



011720-01



011760-00

## Dual Adjustable Thermostats Specifications

<b>Switching Difference</b>	12.6°F [7K]
<b>Switching Tolerance</b>	±7°F [± 4K]
<b>Sensor Element</b>	Thermostatic bimetal
<b>Contact Type</b>	Snap-action contact
<b>Contact Resistance</b>	<10 mΩ
<b>Service Life</b>	>100,000 cycles
<b>Max. Switching Capacity</b>	NC: 10A resistive / 2A inductive @ 250VAC NO: 5A resistive / 2A inductive @ 250VAC 15 resistive / 2A inductive @ 120VAC DC 30W (24-72 VDC)
<b>Max. Inrush Current</b>	AC 16A for 10 sec.
<b>Minimum Load</b>	20mA (all voltages)
<b>Connection</b>	4-pole terminal, 0.5 Nm max. clamping torque; 14 AWG [2.5mm] max. solid wire 16 AWG [1.5 mm <sup>2</sup> ] max. stranded wire with wire end ferrule
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating / Storage Temperature</b>	-49 to 176°F [-45 to 80°C]
<b>Weight</b>	0.2 lb [90 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, CSA, VDE, EAC, UL Recognized File No. E164102, RoHS 2 compliant

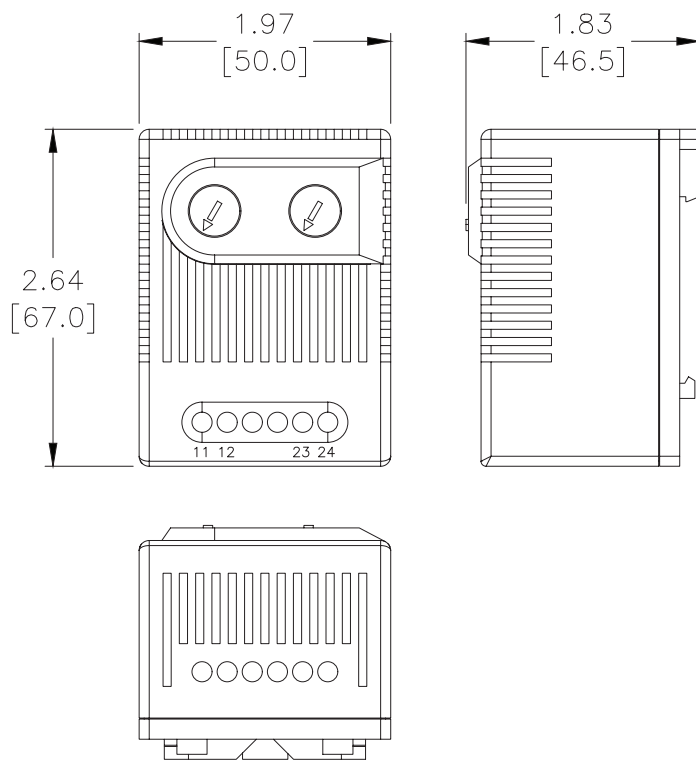
## Dual Adjustable Thermostats

Part Number	Price	Left Contact	Setting Range	Right Contact	Setting Range
<a href="#">011720-00</a>	\$41.50	N.C.	0 to 60°C	N.O.	0 to 60°C
<a href="#">011720-01</a>	\$41.50		32 to 140°F		32 to 140°F
<a href="#">011750-00</a>	\$41.50		-10 to 50°C		20 to 80°C
<a href="#">011750-01</a>	\$41.50		14 to 122°F		68 to 176°F
<a href="#">011760-00</a>	\$41.50	N.O.	0 to 60°C		0 to 60°C
<a href="#">011760-01</a>	\$41.50		32 to 140°F		32 to 140°F

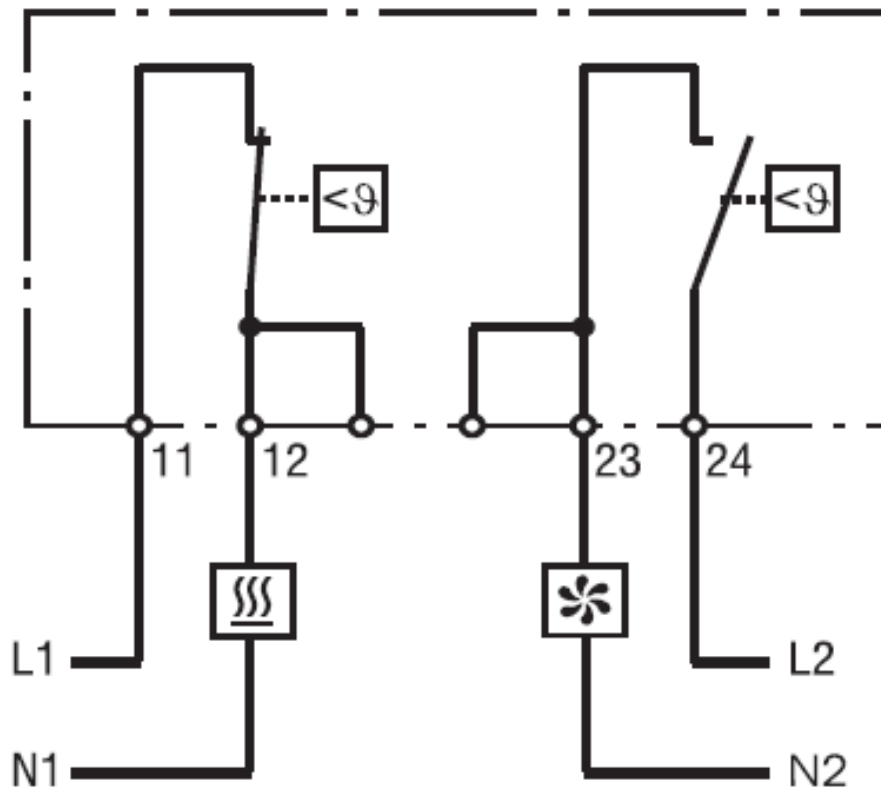
# Dual Adjustable Thermostats



## Dimensions



## Wiring Diagram



# Smart Sensor For Temperature and Humidity



014202-00

## Applications

The compact Smart Sensor electronically measures temperature and humidity and converts measured data into a standardized analog 4 to 20 mA signal or an IO-Link protocol signal. The converted value signals can be used and processed by a control monitoring unit, e.g., a PLC control (*IO-Link devices require an IO-Link Master to communicate with a PLC*). The Smart Sensor is suitable for use in a wide variety of applications and can be used even in harsh environmental conditions, such as wind power.

## Features

- Analog/I/O-Link digital interface
- Compact size
- DIN rail and/or screw mount
- High accuracy
- Quick connection (M12 plug-in connector)
- Wide temperature and humidity range
- Various application areas (IEC 61010-1/DIN EN 61010-1)

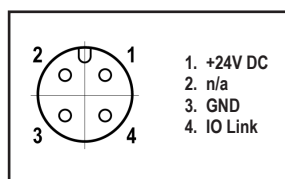
## Listings

- UL Recognized File E500143

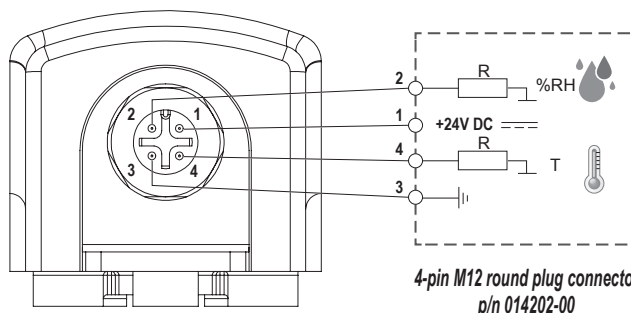


Smart Sensors			
Part Number	Price	Output	Drawing Link
<a href="#">014202-00</a>	\$157.00	4-20 mA, 2 channel	<a href="#">PDF</a>
<a href="#">014112-00</a>	\$157.00	I/O-Link	<a href="#">PDF</a>

General Specifications	
<b>Operating Voltage</b>	24 VDC
<b>Temperature Measuring Range</b>	-40 to 140°F [-40 to 60°C] ±1 K tolerance
<b>Humidity Measuring Range</b>	0 to 100 % RH ±4 % RH tolerance
<b>Max. Reaction Time</b>	3 minutes.
<b>Load Resistance (External)</b>	≤ 500 Ω
<b>Max. Power Consumption</b>	1.8 W (typically 0.4 W)
<b>Connection</b>	M12 round plug connector, IEC 61076-2-101, 4-pin, A-coded, shielded
<b>Electrical Protection</b>	Reverse-polarity, short circuit, overvoltage protection
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715 and screw mount (M5, not included)
<b>Housing</b>	Plastic, UL94 V-0, light gray
<b>Dimensions</b>	5.5 x 1.6 x 1.5 in [140 x 40 x 38 mm]
<b>Weight</b>	Approx. 1.8 oz. [50g]
<b>Mounting Position</b>	Vertical (connection on top)
<b>Operating Temperature</b>	-40 to 158°F [-40 to 70°C]
<b>Storage Temperature</b>	-40 to 185°F [-40 to 85°C]
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)
<b>Protection Class</b>	III (SELV)
<b>Protection Type</b>	IP20
<b>Approvals</b>	EAC, CE, VDE, UL File Recognized File E500143), (acc. to IEC 61010-1 / DIN EN 61010-1)



4-pin M12 round plug connector  
p/n 014112-00



# Mechanical Thermostats



## Applications

The STEGO mechanical thermostat is used for controlling heating and cooling equipment, filter fans or signal devices where a higher° of sensing accuracy is required. An integrated resistor (RF) can be connected to improve the switch temperature difference (see Option note). The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact.



## Features

- Compact design
- Adjustable setting dial
- DIN rail mounting
- High switching capacity



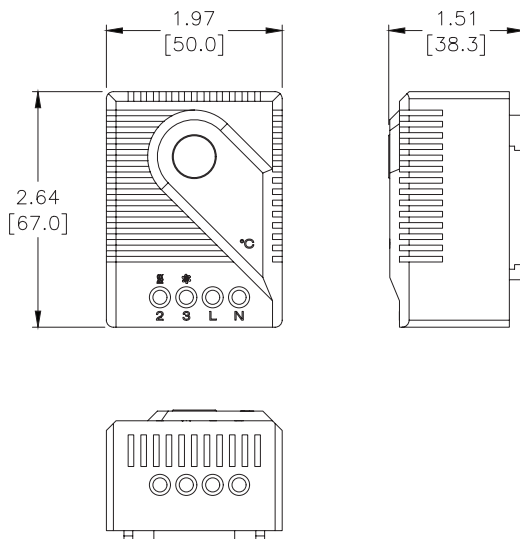
Mechanical Thermostats			
Part Number	Price	Operating* Voltage	Setting Range
<b>011700-00</b>	\$42.00	230VAC	5 to 60°C
<b>011700-01</b>	\$42.00		40 to 140°F
<b>011709-00</b>	\$42.00	120VAC	40 to 140°F
<b>011709-01</b>	\$42.00		5 to 60°C

Note: \*Voltage only needs to be specified if the optional use of the RF register is desired.

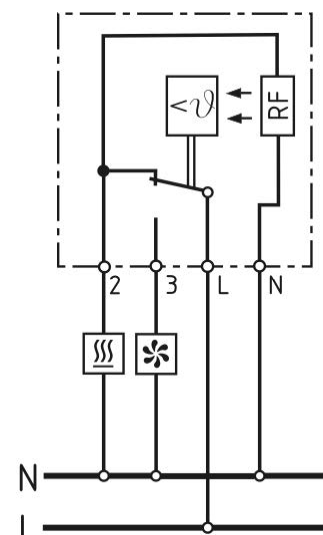
Mechanical Thermostats Specifications	
<b>Switching Difference</b>	9°F [5K]
<b>Switching Tolerance</b>	-5.4/+3.6°F [-3/+2°C]
<b>Sensor Element</b>	Thermostatic bimetal
<b>Contact Type</b>	SPDT / change-over contact
<b>Contact Resistance</b>	<10 mΩ
<b>Service Life</b>	>100,000 cycles
<b>Max. Switching Capacity, NC</b>	10A resistive / 4A inductive @ 120VAC 10A resistive / 4A inductive @ 250VAC DC 30W (24-72 VDC)
<b>Max. Switching Capacity, NO</b>	5A resistive / 2A inductive @ 120VAC; 5A resistive / 2A inductive @ 250VAC; DC 30W (24-72 VDC)
<b>Connection</b>	4-pole terminal, 0.5 Nm max. wire or clamping torque 14 AWG [2.5 mm <sup>2</sup> ] max. solid wire or stranded wire with wire end ferrule
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating / Storage Temperature</b>	-49 to 149°F [-45 to 65°C]
<b>Weight</b>	1.8 oz [50 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	Recognized File No. E164102, CE, EAC, RoHS 2 compliant

Note: If the Normally Closed contact is used, the switch temperature difference could be reduced by connecting terminal "N" (RF heating resistor). It causes the thermal feedback, which is subject to surrounding conditions and thus has to be determined for each application.

## Dimensions



## Wiring Diagram



# Electronic Thermostats



011900-00

## Applications

- Used for regulating high-performance DC 24V equipment
- Heating or cooling equipment, and signal devices can be switched via the SPDT (change-over) contact

## Features

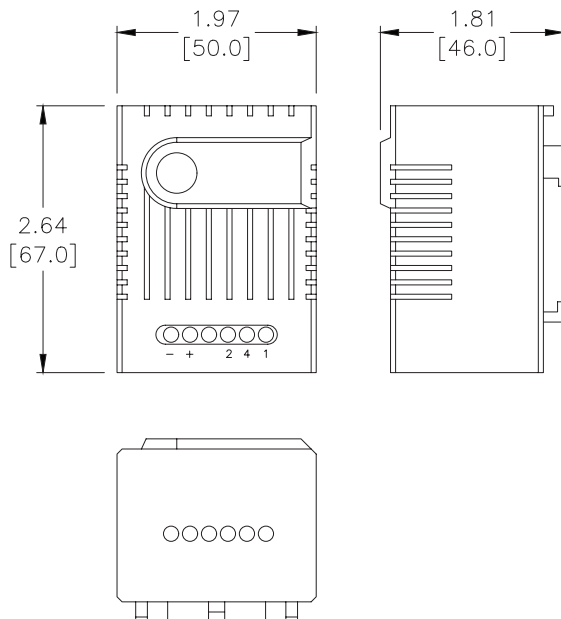
- Compact design
- Adjustable setting dial
- DIN rail mounting
- Low hysteresis
- Wide adjustment range



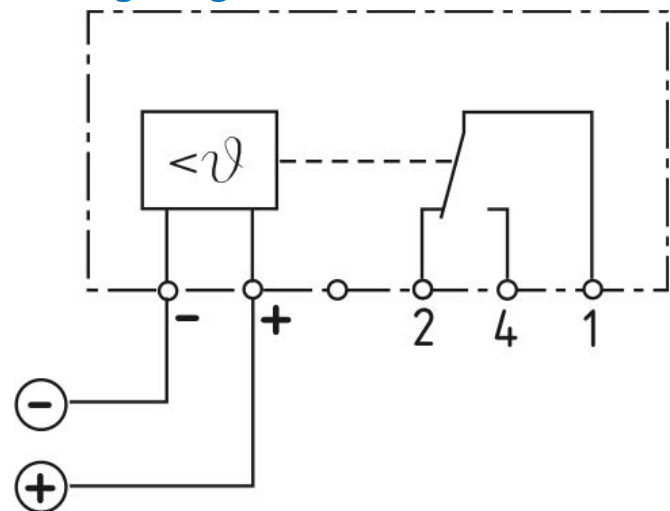
Electronic Thermostat			
Part Number	Price	Operating Voltage	Setting Range
011900-00	\$60.00	DC 24V (DC 20-28V)	0 to 60°C
011900-01	\$60.00		32 to 140°F

Electronic Thermostats Specifications	
<b>Switching Difference</b>	5.4°F [3K]
<b>Switching Tolerance</b>	±1.8°F [±1K]
<b>Sensor Element</b>	PTC
<b>Contact Type</b>	SPDT / change-over contact
<b>Service Life</b>	>100,000 cycles
<b>Max. Switching Capacity</b>	16A @ DC 28V
<b>Max. Inrush Current</b>	DC 16A
<b>Connection</b>	5-pole terminal, 0.5 Nm max. clamping torque 14 AWG [2.5 mm <sup>2</sup> ] max. solid wire 16 AWG [1.5 mm <sup>2</sup> ] max. stranded wire with wire end ferrule
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating / Storage Temperature</b>	14 to 140°F [-10 to 60°C] / -49 to 176°F [-45 to 80°C]
<b>Operating / Storage Humidity</b>	Max 95% RH (non-condensing)
<b>Weight</b>	2.4 oz [70 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, EAC, RoHS 2 compliant

## Dimensions



## Wiring Diagram



# Mechanical Hygrostats



## Applications

- Designed to control relative humidity inside enclosures
- When connected to an enclosure heater (dehumidifier), it will energize the heater at the humidity set point in order to raise the dew point
- Helps prevent damage and malfunction of electronic components caused by condensation and corrosion
- Can be used to control heaters, cooling fans, warning lights, or other devices

## Features

- Efficient condensation control
- Adjustable thumbwheel setting
- High switching capacity
- DIN rail mountable



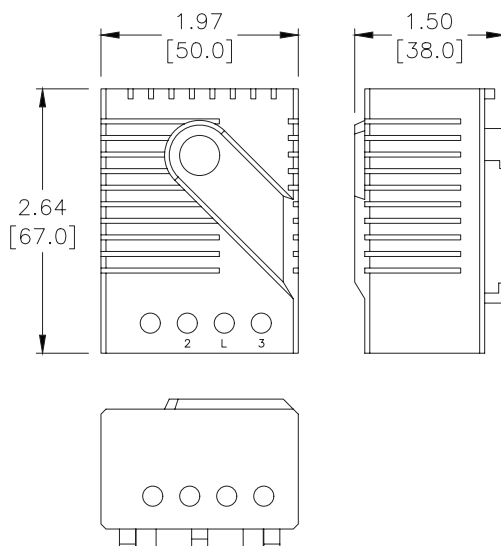
### Mechanical Hygrostat

Part Number	Price	Setting Range
012200-00	\$98.00	35 to 95% RH

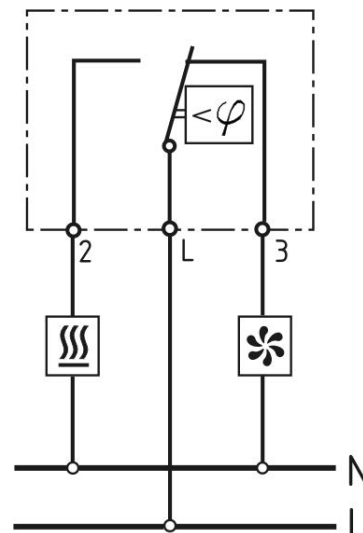
### Mechanical Hygrostats Specifications

<b>Switching Difference</b>	4% RH at 50% RH
<b>Switching Tolerance</b>	±3% RH
<b>Permissible air velocity</b>	50 ft/sec [15 m/s]
<b>Contact Type</b>	SPDT / change-over contact
<b>Service Life</b>	>50,000 cycles
<b>Min. Switching Capacity</b>	100mA @ AC/DC 20V
<b>Max. Switching Capacity</b>	5A resistive @ AC 250V DC 20W
<b>Connection</b>	3-pole terminal, 0.5 Nm max. clamping torque 14 AWG [2.5 mm <sup>2</sup> ] max. solid wire 16 AWG [1.5 mm <sup>2</sup> ] max. stranded wire with wire end ferrule
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating / Storage Temperature</b>	32 to 140°F [0 to 60°C] / -40 to 140°F [-40 to 60°C]
<b>Operating / Storage Humidity</b>	Max. 95% RH (non-condensing)
<b>Weight</b>	2.0 oz [60 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	Recognized File No. E164102, CE, EAC, RoHS 2 compliant

## Dimensions



## Wiring Diagram





# Electronic Hygrostats



012450-00 and 012459-00

## Applications

The electronic hygrostats (humidistats) sense the relative humidity in an enclosure and turn on a heater at the set point. This helps prevent the formation of condensation in the enclosure. The integrated LED is lit when the connected device is in operation.

## Features

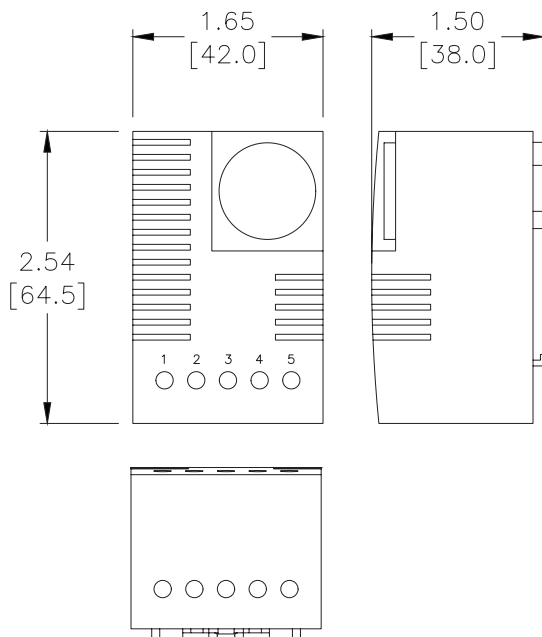
- Adjustable relative humidity setpoints
- Compact design
- High switching capacity
- Visual function display
- DIN rail mounting



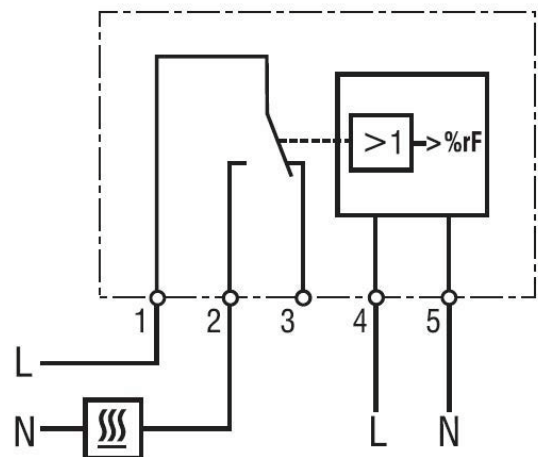
Electronic Hygrostats			
PartNumber	Price	OperatingVoltage	SettingRange
<a href="#">012450-00</a>	\$76.00	230VAC	40% to 90% RH
<a href="#">012459-00</a>	\$76.00	120VAC	40% to 90% RH
<a href="#">012460-00</a>	\$76.00	230VAC	65% RH preset
<a href="#">012469-00</a>	\$76.00	120VAC	65% RH preset

Electronic Hygrostats Specifications	
<b>Switching Difference</b>	5% RH at 77°F [25°C] and 50% RH
<b>Switching Tolerance</b>	±1% RH
<b>Reaction Time</b>	Approximately 5 seconds
<b>Contact Type</b>	SPDT / change-over contact (relay)
<b>Service Life</b>	50,000 cycles
<b>Max. Switching Capacity(relay output)</b>	8A resistive / 1.6 A inductive @ AC 120V 8A resistive / 1.6 A inductive @ AC240V 100W @ DC 24V
<b>Max. Inrush Current</b>	AC 16A for 10 sec.
<b>Connection</b>	5-pole terminal, 0.5 N m max. clamping torque 14 AWG [2.5mm] max. solid wire 16 AWG [1.5 mm <sup>2</sup> ] max. stranded wire with wire end ferrule
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical
<b>Operating Temperature</b>	32 to 140°F [0 to 60°C]
<b>Storage Temperature</b>	-4 to 176°F [-20 to 80°C]
<b>Max. Storage Humidity</b>	90% RH (non-condensing)
<b>Weight</b>	0.14 lb [65 g]
<b>Protection Type</b>	IP20
<b>Approvals</b>	UL Recognized File No. E164102, CE, VDE, EAC, RoHS 2 compliant

## Dimensions



## Wiring Diagram



# Electronic Hygrotherms



## Applications

The electronic hygrotherms sense the ambient temperature and relative air humidity (RH). Depending on the selected contact combination, the hygrotherm will turn a connected device on or off if either the temperature is below or the humidity is above the set points. The integrated LED in each adjustment knob is lit to indicate the active function.

## Features

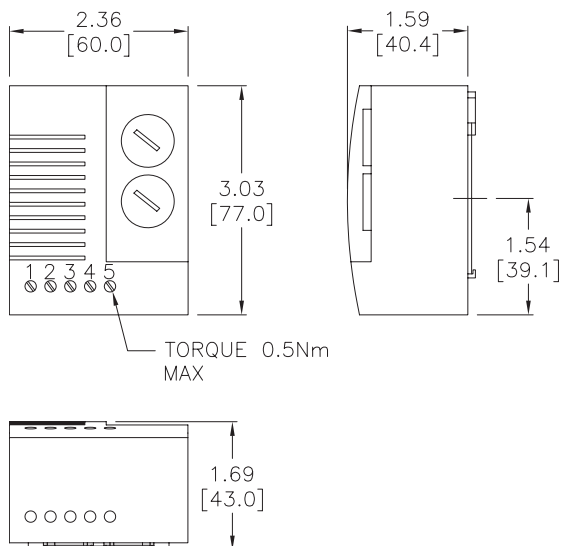
- Efficient temperature and humidity control
- Compact design
- High switching capacity
- Optical function display
- DIN rail mounting
- Current draw of fewer than 10 mA



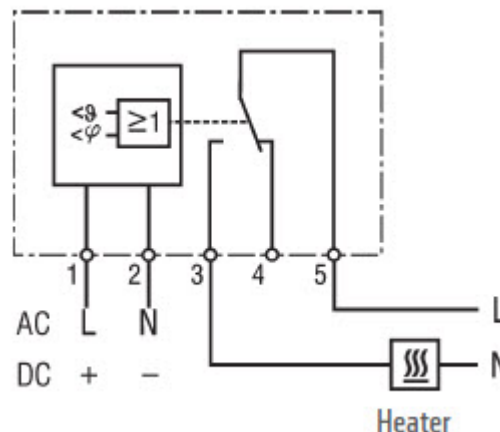
Electronic Hygrotherms DIN Rail Mounted			
Part Number	Price	Settings Ranges	
		Temp	Humidity
<b>012309-00</b>	\$131.00	32 to 140°F	50% to 90% RH
<b>012300-00</b>	\$131.00	0 to 60°C	50% to 90% RH

Electronic Hygrotherms Specifications		
Switching Difference	Temperature	Humidity
	3.6°F [2K] at 77°F [25°C] and 50% RH	4% RH at 77°F [25°C] and 50% RH
Switching Tolerance	+/- 1K	+/- 1% RH
Operating Voltage	100-240 VAC, 50/60 Hz	
Response Time - Humidity	Approximately 5 seconds	
Contact Type	Change-over contact (relay)	
Contact Resistance	<10 mΩ	
Service Life	UL; 30,000 cycles VDE; 15,000 cycles	
Max. Switching Capacity	10A resistive / 1.6 A inductive @ 240VAC 0.6A @ 60VDC*	
Max. Inrush Current	AC 30A for 10 sec.	
Connection	5-pole terminal, 0.5 Nm max. clamping torque 14 AWG [2.5mm] max. solid wire 16 AWG [1.5 mm2] max. stranded wire with wire end ferrule	
Housing	Plastic, UL 94V-0, light gray	
Mounting	Clip for 35mm DIN rail, EN 60715	
Mounting Position	Vertical	
Operating / Storage Temperature	-40 to 140°F [-40 to 60°C]	
Storage Humidity	max. 95% RH (non-condensing)	
Weight	0.22 lb [100 g]	
Protection Type	IP20	
Approvals	CE, UL Recognized File No. E164102, VDE, RoHS 2 compliant	
Note: *Not UL confirmed.		

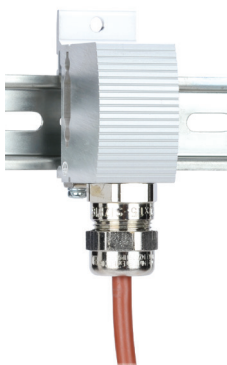
## Dimensions



## Wiring Diagram



# Hazardous Area Thermostats



011850-00

## Applications

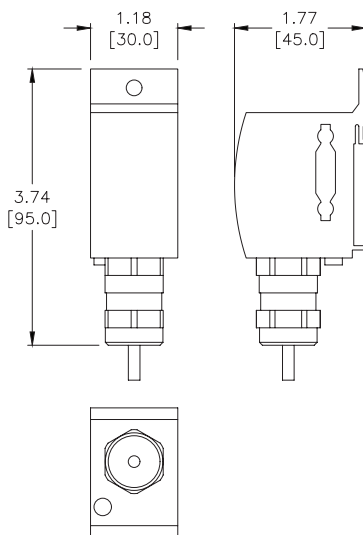
Compact, small mechanical thermostat offering a high response accuracy, small switching difference, and a very long service life (switching cycles). This thermostat of temperature class T6 (185°F/85°C max.) is utilized for the regulation of heaters deployed in hazardous areas. High current performance allows direct control of a heater.

## Features

- For use in hazardous areas
- High switching capacity
- Compact design
- "Pre-set" temperatures
- Ready to use with strain relief
- Temperature class T6
- DIN rail mounting



## Dimensions



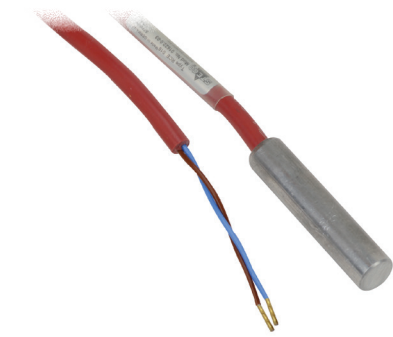
## Hazardous Area Thermostat Specifications

<b>Temperature Class</b>	T6
<b>Ex Protection Type Ex 11 2 GD Gases</b>	Ex db IIC T6 Gb
<b>Dusts</b>	Ex tb IIIC T85 °C Db IP66
<b>Ambient Temperature</b>	-76 to 185°F [-60 to 85°C]
<b>Sensor Element</b>	Thermostatic bimetal
<b>Service Life</b>	> 100 000 cycles
<b>Max. Switching Capacity</b>	AC 250V 10A* DC 24V 1A
<b>Min. Switching Capacity</b>	DC 1.5V 5mA
<b>Max. Inrush Current</b>	AC 16A for 12 sec.
<b>Connection</b>	Silicone cable (halogen-free) 3 x 18 AWG (0.82 mm²), length 3ft [1m]
<b>Housing</b>	aluminum, silver anodized
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715 M5 screw mounting, optional sideways mounting
<b>Mounting Position</b>	Variable
<b>Operating / Storage Humidity</b>	max. 90 % RH (non-condensing)
<b>Storage Temperature</b>	-76 to 185°F [-60 to 85°C]
<b>Weight</b>	0.66 lb [300 g]
<b>Protection Type / Protection Class</b>	IP66 / I (grounded)
<b>Approvals</b>	EPS 16 ATEX 1 118 X IECEx EPS 16.0054X EAC, CE 0081 Ex 11 2 GD
<b>Note:</b> *Currents above 4 A affect the switching difference.	

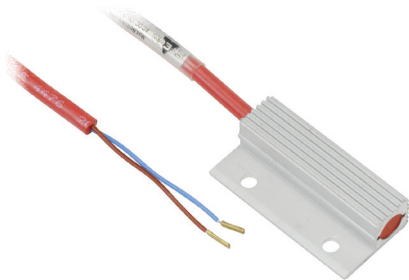
## Hazardous Area Thermostat

PartNumber	Price	Contact Type	Switch Temperature	Switching Difference (Hysteresis)
<b>011850-00</b>	\$126.00	Normally Closed	59°F ± 5°F [15°C ± 3K]	9°F ± 5°F / tolerance [5°C ± 3K]
<b>011851-00</b>	\$126.00	Normally Closed	77°F ± 5°F [25°C ± 3K]	9°F ± 5°F / tolerance [5°C ± 3K]

# 5W to 13W PTC Heaters



5W, 9W



8W, 10W, 13W

## Applications

STEGO small positive temperature coefficient heaters are designed to prevent failure of electronic components caused by condensation, corrosion and low temperatures in small enclosures.

## Features

- Compact size
- Wide voltage range
- Energy saving
- Heating power adjusts to ambient temperature



5W to 13W PTC Heaters		
<b>Heating Element</b>		PTC Resistor - Temperature limiting
<b>Heater Body</b>		Aluminum, anodized
<b>Insulation</b>		PTFE / Kapton
<b>Mounting</b>	5W, 9W	2 pressure clips included (mounting screws not included)
	8W, 10W, 13W	Panel mount (mounting screws not included)
<b>Mounting Position</b>		Variable
<b>Operating / Storage Temperature</b>		-49 to 158°F [-45 to 70°C]
<b>Operating / Storage humidity</b>		Max 90% RH (non-condensing)
<b>Protection Class</b>		II (double insulated)
<b>Protection Type</b>		IP54
<b>Approvals</b>		CE, VDE, UL Recognized File No. E234324 and E150057,

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

5W to 13W PTC Heaters Specifications						
Part Number	Price	Heating Capacity <sup>1</sup>	Operating Voltage <sup>2</sup>	Max. current (inrush)	Surface Temperature <sup>1</sup>	Weight (approx.)
<a href="#">016240-03</a>	\$14.50	5W	12-24 VAC/VDC	5.8 A	284°F [140°C]	0.7 oz [20g]
<a href="#">016220-03</a>	\$15.00	5W	120-240 VAC/VDC	2.0 A	329°F [165°C]	
<a href="#">016020-03</a>	\$16.50	8W	12-24 VAC/VDC	3.7 A	273°F [134°C]	
<a href="#">016020-00</a>	\$15.00	8W	120-240 VAC/VDC	2.0 A	302°F [182°C]	
<a href="#">016230-01</a>	\$14.00	9W	120-240 VAC/VDC	2.5 A	347°F [150°C]	
<a href="#">016250-02</a>	\$23.50	9W	12-24 VAC/VDC	2.4 A	360°F [175°C]	1.0 oz [28g]
<a href="#">016090-01</a>	\$16.50	10W	12-24 VAC/VDC	5.7 A	270°F [132°C]	
<a href="#">016090-00</a>	\$16.50	10W	120-240 VAC/VDC	2.5 A	311°F [155°C]	1.2 oz [34g]
<a href="#">016100-01</a>	\$19.00	13W	12-24 VAC/VDC	10.0 A	298°F [148°C]	
<a href="#">016100-00</a>	\$19.00	13W	120-240 VAC/VDC	3.0 A	338°F [170°C]	

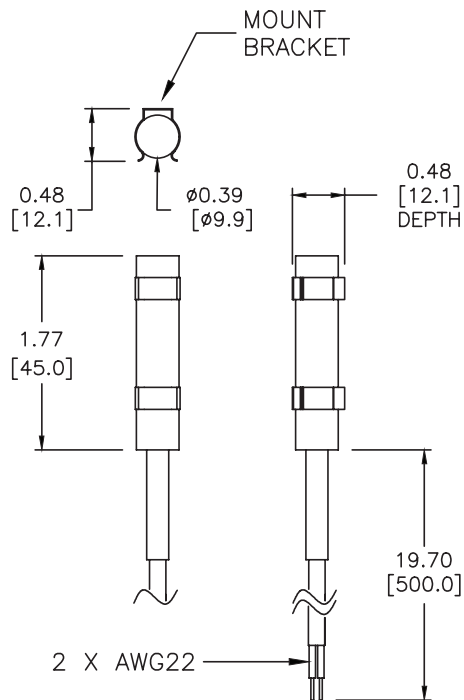
Notes: <sup>1</sup> At 68°F [20°C] ambient temperature  
<sup>2</sup> Operating high voltage heaters below 140V AC/DC reduces heating performance by approximately 10% (min. 110V, max. 265V)

# 5W to 13W PTC Heaters

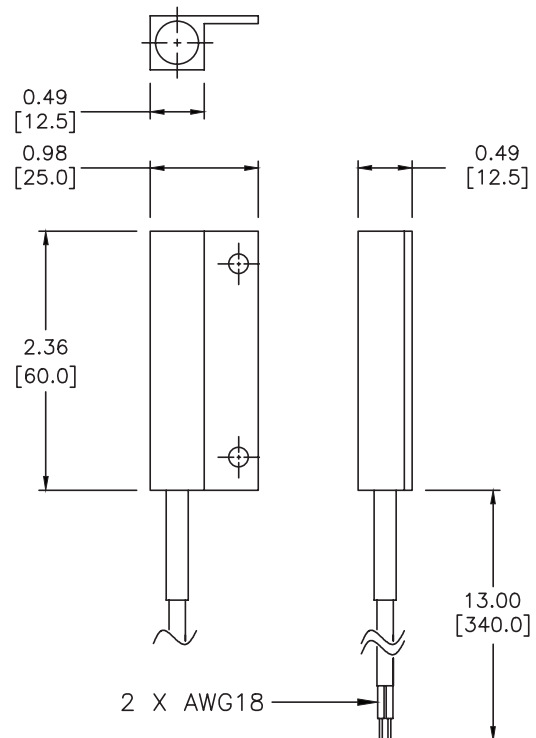


## Dimensions

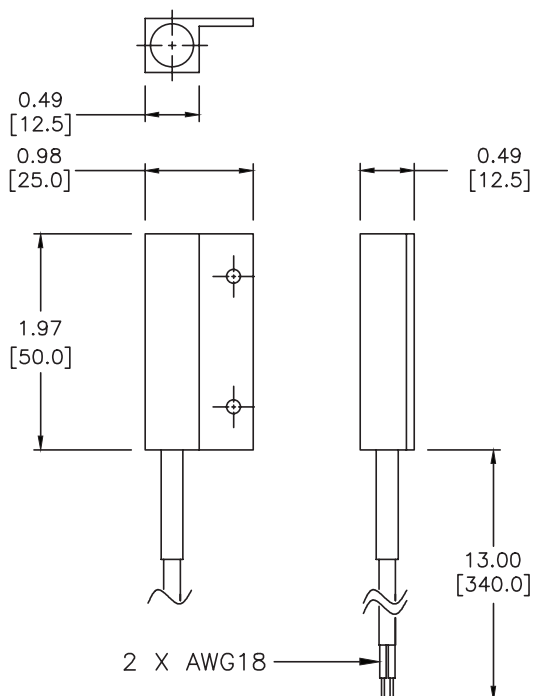
**016220-03, 016230-01, 016240-03, 016250-02**



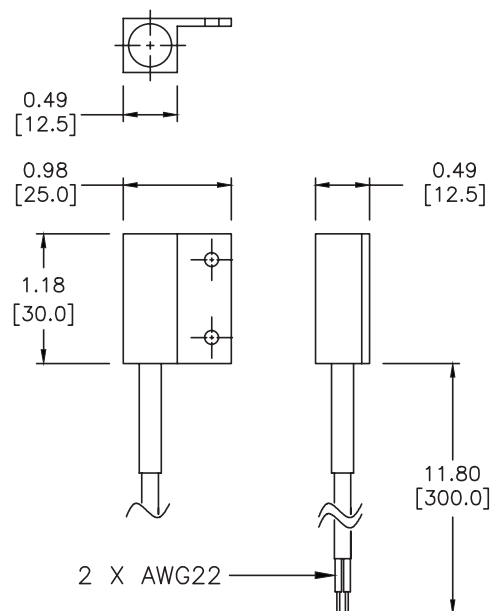
**016100-00, 016100-01**



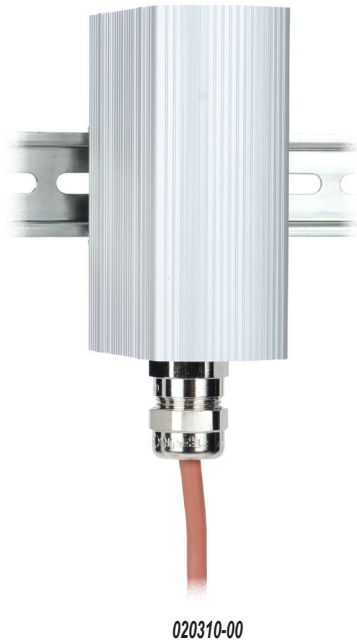
**016090-00, 016090-01**



**016020-00, 016020-03**



# 50W to 200W Hazardous Location Heaters



## Applications

Compact convection heater of temperature class T3 (392°F/200°C max.) for use in hazardous areas to prevent formation of condensation, temperature fluctuations, and for protection against frost in control and switch cabinets, as well as in measuring equipment.

## Features

- For use in hazardous areas
- Large convection surface
- DIN rail and screw mounting
- Ready to use with strain relief
- Maintenance free
- Temperature class T3



### 50W to 200W Hazardous Location Heaters Specifications

<b>Temperature Class</b>	T3
<b>Ex Protection Type 11 2 GD Gases</b>	Ex db IIC T3 Gb
<b>Dusts</b>	Ex tb IIC T200 °C Db IP66
<b>Ambient Temperature</b>	-76 to 185°F [-60 to 85°C]
<b>Surface Temperature</b>	Max. 392°F [200°C]
<b>Heating Element</b>	High performance cartridge
<b>Heating Body</b>	Aluminum profile, silver anodized
<b>Connection</b>	Silicone cable (halogen-free) 3 x 18 AWG [0.82 mm²], length 3ft [1m]
<b>Connection PE</b>	18 to 14 AWG [0.75 to 2.55 mm²]
<b>Housing</b>	Aluminum, silver anodized
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715 for heating body sizes 3.2 x 1.9" and 4.7 x 2.4.0in [103mm]
<b>Mounting Position</b>	Vertical airflow (connection at bottom)
<b>Storage Temperature</b>	-76 to +185°F [-60 to 85°C]
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)
<b>Protection Type / Protection Class</b>	IP66 / I (grounded)
<b>Approvals</b>	EPS 16 ATEX 1109X IECEx EPS 16.0048X EAC, CE 0081 Ex 11 2 GD

### 50W to 200W Hazardous Location Heaters

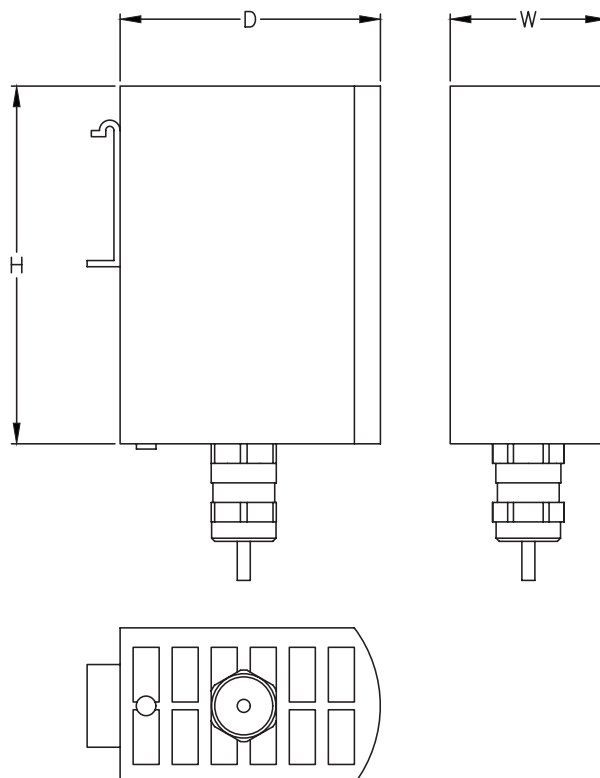
Part Number	Price	Operating Voltage	Heating Capacity	Rec. Pre-fuse T (time-delay)	Dimensions	Weight (lb)
<a href="#">020310-00</a>	\$187.00	AC 230V	50W	0.5 A	4.33 x 1.89 x 3.15 [110 x 48 x 80]	1.5
<a href="#">020319-00</a>	\$187.00	AC 120V	50W	1.0 A	4.33 x 1.89 x 3.15 [110 x 48 x 80]	1.5
<a href="#">020320-00</a>	\$214.00	AC 230V	100W	1.0 A	7.09 x 1.89 x 3.15 [180 x 48 x 80]	2.2
<a href="#">020329-00</a>	\$214.00	AC 120V	100W	2.0 A	7.09 x 1.89 x 3.15 [180 x 48 x 80]	2.2
<a href="#">020340-00</a>	\$238.00	AC 230V	200W	2.0 A	9.45 x 2.36 x 4.72 [240 x 60 x 120]	3.7
<a href="#">020349-00</a>	\$238.00	AC 120V	200W	4.0 A	9.45 x 2.36 x 4.72 [240 x 60 x 120]	3.7

Note: Dimensions in inches [millimeters].

# 50W to 200W Hazardous Location Heaters



## Dimensions



GENERAL INFORMATION			
PART NUMBER	HEIGHT	DEPTH	WIDTH
020310-00	4.33 [109.9]	1.89 [48.0]	3.15 [80.0]
020319-00	4.33 [109.9]	1.89 [48.0]	3.15 [80.0]
020320-00	7.09 [180.0]	1.89 [48.0]	3.15 [80.0]
020329-00	7.09 [180.0]	1.89 [48.0]	3.15 [80.0]
020340-00	9.45 [240.0]	2.36 [59.9]	4.72 [119.8]
020349-00	9.45 [240.0]	2.36 [59.9]	4.72 [119.8]



# Flat Heaters for Enclosures



## Applications

The flat heater is used to provide evenly distributed temperature within enclosures with electric or electronic components. Its ultra-thin design makes it particularly suitable for high-density applications in which standard enclosure heaters are often too big. Depending on the application, the flat heater can be used as a convection heater or as a contact heater. When used as a contact heater, it offers thermoconductive contact to a component or cabinet wall. Additionally, a specially designed mounting system compensates for thermal expansion of the heater body. Operated as a convection heater, the slim heater warms up the ambient air within a cabinet and is designed for continuous operation.

## Features

- Contact/convection heater
- Ultra flat design - only 0.32in [8 mm]} thick
- Compact
- Easy, firm installation
- Screw fixing
- Linear expansion compensation
- Integrated temperature cut-out
- Ready-to-use with strain relief

## Listings

- UL File E234324



50W Flat Heater  
061000-00



100W Flat Heater  
061010-00

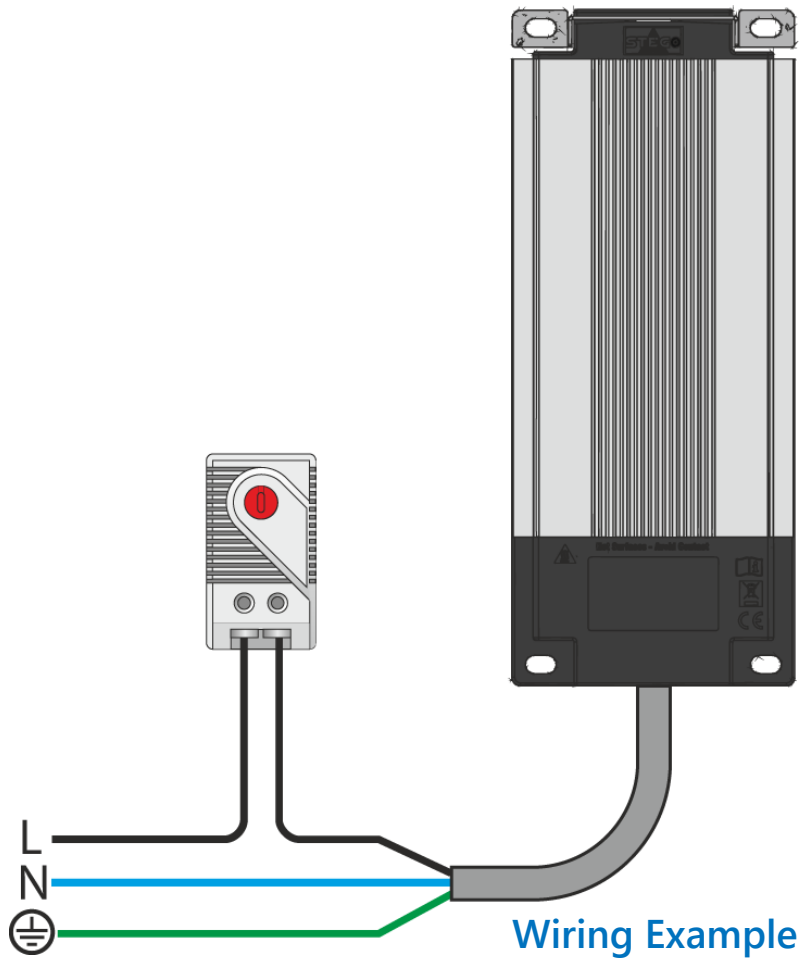
### Flat Heaters Specifications

<b>Heating Element</b>	Resistance heater
<b>Overheat Protection</b>	With automatic reset
<b>Heater Body</b>	aluminum profile
<b>Surface Temperature</b>	Max. 302 °F [150 °C] at 77 °F [25 °C]
<b>Connection</b>	Silicone cable (halogen-free) 3 x AWG 18 [0.75 mm²], length 3.3ft [1m]
<b>Housing</b>	Plastic, UL 94V-0, black
<b>Mounting Hardware</b>	M6 screws
<b>Mounting Position</b>	Horizontal, variable connection or vertical, connection on bottom
<b>Operating Temperature</b>	-40 to 140 °F [-40 to 60°C]
<b>Storage Temperature</b>	-40 to 185°F [-40 to 85°C]
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)
<b>Protection Class</b>	I (earthed)
<b>Protection Type</b>	IP30
<b>Approvals</b>	UL File E234324, VDE, EAC, CE

### Flat Heaters for Enclosures

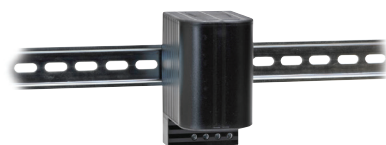
Part Number	Price	Operating Voltage	Heating Capacity	Weight (approx.)	Drawing Link
<a href="#">061000-00</a>	\$114.00	AC 230V 50/60Hz	50W	0.88 lb [0.4 kg]	<a href="#">PDF</a>
<a href="#">061010-00</a>	\$137.00	AC 230V50/60 Hz	100W	1.54 lb [0.7 kg]	<a href="#">PDF</a>
<a href="#">061009-00</a>	\$114.00	AC 120V 50/60 Hz	50W	0.88 lb [0.4 kg]	<a href="#">PDF</a>
<a href="#">061019-00</a>	\$137.00	AC 120V 50/60 Hz	100W	1.54 lb [0.7 kg]	<a href="#">PDF</a>

# Flat Heaters for Enclosures



Size Reference

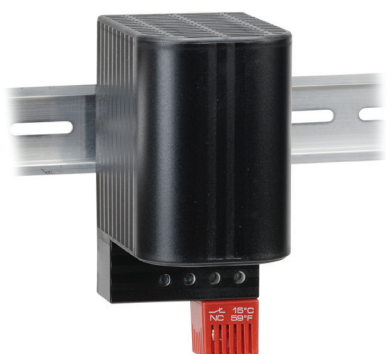
# 10W to 150W Touch-Safe PTC Heaters



060000-00, 060100-00 and 060200-00



060300-00, 060400-00 and 060401-00



060010-00, 060110-00, and 060210-00

## Applications

These touch-safe positive temperature coefficient heaters are for use in enclosures. The design of the heater utilizes natural convection, which results in a circulating current of warm air. The heater's design minimizes surface temperatures on the accessible side surfaces of the housing. Models 060010-00, 060110-00, and 060210-00 include a plug-in thermostat and require no additional wiring.

## Features

- Compact heater
- Low surface temperature
- Wide voltage range
- Double insulated protection
- DIN rail mounting



## 10W to 150W Touch-Safe PTC Heaters Specifications

Heating Element		PTC Resistor - Temperature limiting
Connection	060300-00 060400-00 060401-00	2-pole terminal, 14 AWG [2.5mm] max. solid wire or stranded wire with wire end ferrules, 0.8 N·m max. clamping torque
	060000-00 060010-00 060100-00 060110-00 060200-00 060210-00	4-pole terminal, 14 AWG [2.5 mm <sup>2</sup> ], 0.8 N·m max. clamping torque
Housing		Plastic, UL 94V-0, black
Mounting		Clip for 35mm DIN rail, EN 60715
Mounting Position		Vertical only (exhaust up)
Recommended Mounting Distance		Sides: 0.79in [20 mm] Bottom/above: 1.97in [50 mm]
Operating/Storage Temperature	060000-00 060000-00 060200-00 060300-00 060400-00 060401-00	-49 to 158°F [-45 to 70°C]
	060010-00 060110-00	-40 to 158°F [-40 to 70°C]
	060210-00	-49 to 158°F [-45 to 70°C]
Operating / Storage Humidity		Max. 90% RH (non-condensing)
Protection Class		II (double insulated)
Protection Type		IP20
Approvals		CE, UL Recognized File No. E150057 (except 060401-00), RoHS 2 compliant

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

## 10W to 150W Touch-Safe PTC Heaters

Part Number	Price	Heating Capacity <sup>1</sup>	Operating Voltage <sup>2</sup>	Max. current (inrush)	Air Outlet Temp <sup>3</sup>	Switch-off Temp <sup>4</sup>	Switch-on Temp <sup>4</sup>	Weight (approx.)
060401-00	\$36.50	10W	12-30V AC/DC	8.0 A	187°F [86°C]	—	—	5.0 oz [140g]
060400-00	\$33.50		120-240V AC/DC	1.0 A				
060300-00	\$38.00	20W	120-240V AC/DC	2.5 A	187°F [86°C]	—	—	6.1 oz [170g]
060000-00	\$60.00	50W	120-240V AC/DC (min. 110V, max. 265V)	2.5 A	187°F [86°C]	—	—	10.4 oz [295g]
060010-00	\$71.00		120-240V AC (min. 110V, max. 265V)	2.5 A		59°F [15°C]	41°F [5°C]	10.8 oz [305g]
060100-00	\$87.00	100W	120-240V AC/DC (min. 110V, max. 265V)	4.5 A	248°F [120°C]	—	—	10.6 oz [300g]
060110-00	\$98.00		120-240V AC (min. 110V, max. 265V)	4.5 A		59°F [15°C]	41°F [5°C]	11.2 oz [320g]
060200-00	\$100.00	150W	120-240V AC/DC (min. 110V, max. 265V)	8.0 A	293°F [145°C]	—	—	15.5 oz [440g]
060210-00	\$111.00		120-240V AC (min. 110V, max. 265V)	8.0 A		59°F [15°C]	41°F [5°C]	15.9 oz [450g]

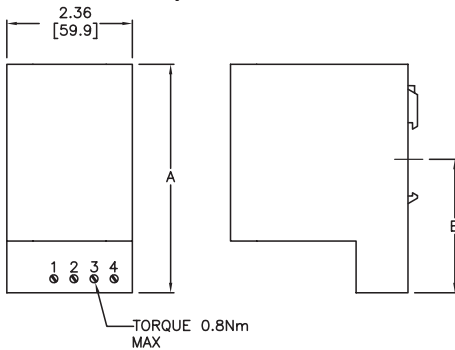
Notes: 50, 100, 150W rating at 32°F [0°C] ambient temperature  
 10, 20W rating at 68°F [20°C] ambient temperature  
 Operating with voltages below 140V AC/DC reduces heating performance by approx. 10% (min. 110V)  
 Measured 2" [50mm] above protective grill  
 Tolerance of ±9°F [±5K]

# 10W to 150W Touch-Safe PTC Heaters

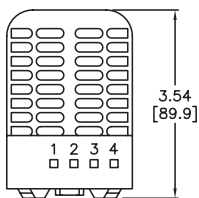
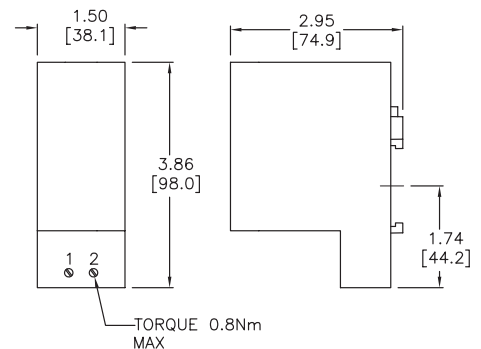
## Dimensions



**060000-00, 060100-00 and 060200-00**



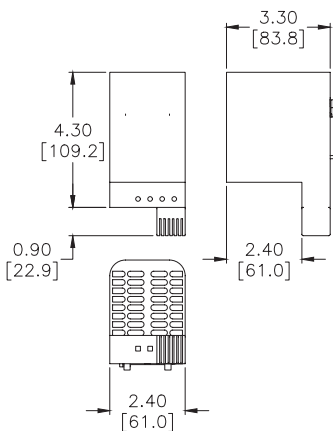
**060300-00, 060400-00 and 060401-00**



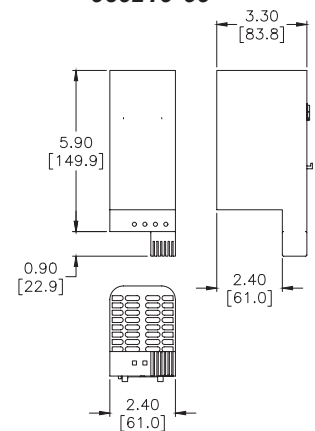
PART NUMBER	DIM A	DIM B
060000-00	4.30 [109.2]	2.51 [63.8]
060100-00	4.30 [109.2]	2.51 [63.8]
060200-00	5.90 [149.9]	4.07 [103.4]

Part Numbers	DIM A	DIM B
<u>060000-00</u>	4.30 [109.2]	2.51 [63.8]
<u>060100-00</u>	4.30 [109.2]	2.51 [63.8]
<u>060200-00</u>	5.90 [149.9]	4.07 [103.4]

**060010-00 and 060110-00**

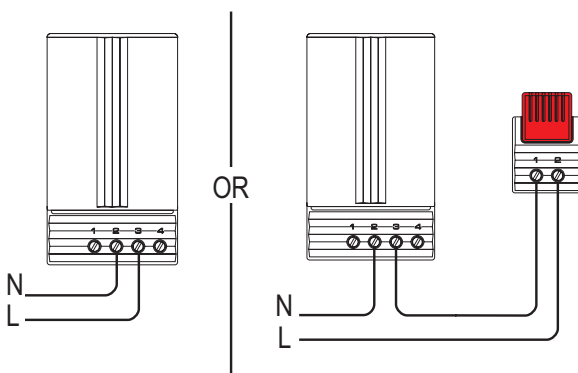


**060210-00**

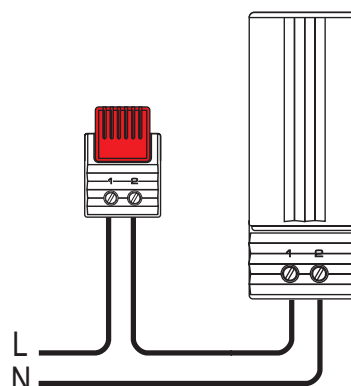


## Wiring Diagrams

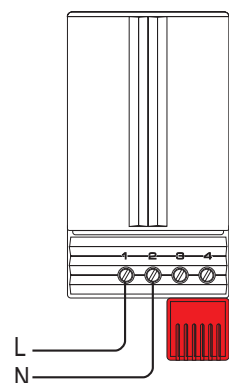
**060000-00, 060100-00 and 060200-00**



**060300-00, 060400-00 and 060401-00**



**060010-00, 060110-00 and 060210-00**



Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# 550W to 650W PTC Fan Heaters



## Applications

These semiconductor positive temperature coefficient fan heaters prevent the formation of condensation and ensure an even temperature in enclosures. The integrated thermostat is used to set the desired temperature while the high performance axial fan provides forced air circulation.

## Features

- Compact fan heater
- Heating power adjusts to ambient temperature
- Integrated adjustable thermostat
- Built-in overheat protection
- DIN rail mountable



### 550W to 650W PTC Fan Heaters Specifications

<b>Heating Element</b>	PTC Resistor - Temperature limiting
<b>Overheat Protection</b>	Built-in temperature limiter
<b>Axial Fan, Ball Bearing</b>	Service life 50,000h at 77°F [25°C]
<b>Connection</b>	2-pole terminal 14 AWG [2.5 mm <sup>2</sup> ], max. solid wire or stranded wire with wire end ferrules, 0.8 N·m max.clamping torque
<b>Housing</b>	Plastic, UL 94V-0, light gray
<b>Function Control Light</b>	LED
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715
<b>Mounting Position</b>	Vertical (exhaust up)
<b>Recommended Mounting Distance</b>	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]
<b>Operating / Storage Temperature</b>	-49 to 158°F [-45 to 70°C]
<b>Protection Class</b>	II (double insulated)
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, UL Recognized File No. E204590, RoHS 2 compliant

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

### 550W to 650W PTC Fan Heaters

Part Number	Price	Heating capacity <sup>1</sup> (@ 60 Hz)	Operating Voltage (Min/Max)	Max. current (inrush)	Air flow, free blowing	Thermostat Range <sup>2</sup>	Weight (approx.)
<a href="#">027009-00</a>	\$198.00	550W	100-120V AC, 50/60 Hz	14.0 A	20 cfm [35 m <sup>3</sup> /h]	32 to 140°F	2.0 lb [907g]
<a href="#">027009-01</a>	\$198.00					0 to 60°C	
<a href="#">027000-00</a>	\$198.00					0 to 60°C	
<a href="#">027019-01</a>	\$221.00	650W	100-120V AC, 50/60 Hz	15.0 A	26 cfm [45 m <sup>3</sup> /h]	0 to 60°C	2.4 lb [1089g]
<a href="#">027010-00</a>	\$221.00					0 to 60°C	
<a href="#">027019-00</a>	\$221.00					32 to 140°F	

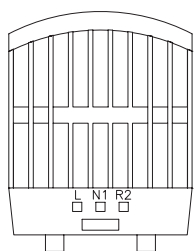
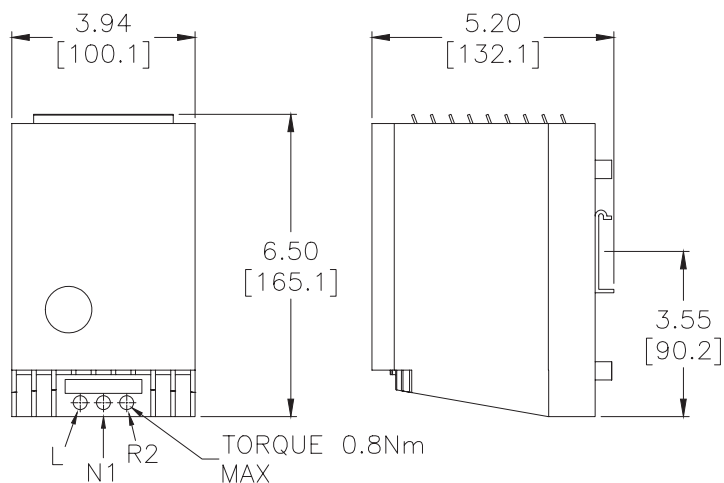
Notes: <sup>1</sup> At 68°F [20°C] ambient temperature

<sup>2</sup> Switch difference 12.6 °F ±7°F [7K ±4K]

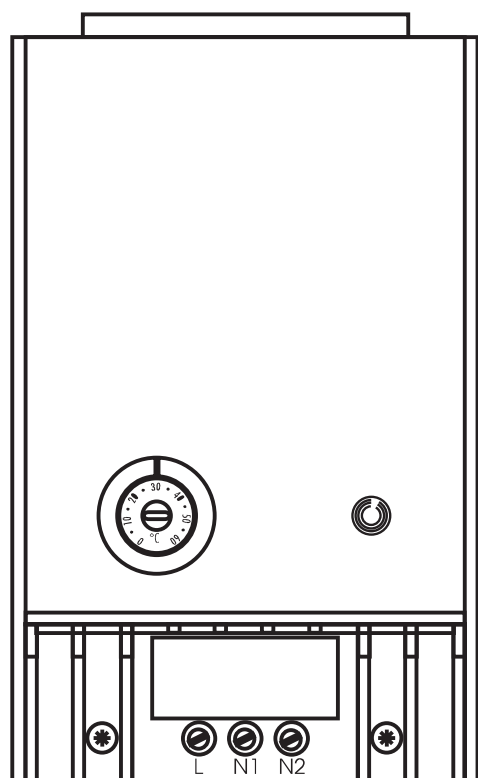
# 550W to 650W PTC Fan Heaters



## Dimensions



## Wiring Diagram



Notes: Only connect the L and N1 terminals – N2 is not used and Grounding is not required.  
When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# 150W to 450W Touch-Safe PTC Fan Heaters



Panel Mount Fan Heaters



DIN Mount Fan Heaters

## Applications

These fan heaters are designed to prevent the formation of condensation and ensure an evenly distributed interior air temperature in enclosures. The heater is connected using the internal terminal connectors. The desired temperature can be set and maintained by an external thermostat (available separately) and the high-performance axial fan provides forced air circulation. The heater design minimizes side surface temperatures of the housing. The small size of these heaters makes them ideal for use in enclosures where space is at a premium.

## Features

- Compact fan heater
- Quiet operation
- Heating power adjusts to ambient temperature
- Models available that are both DIN rail mountable as well as panel mounted



## 150W to 450W Touch-Safe PTC Fan Heaters Specifications

	DIN Mount	Panel Mount
<b>Heating Element</b>	PTC Resistor - Temperature limiting	
<b>Axial Fan, Ball Bearing</b>	Service life 40,000h at 104°F [40°C]	
<b>Connection</b>	2-pole terminal 14 AWG [2.5mm], max. solid wire or stranded wire with wire end ferrule, 0.8 N·m max. clamping torque	
<b>Housing</b>	Plastic, UL 94V-0, black	
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715	Screw mount
<b>Mounting Position</b>	Vertical (exhaust up)	
<b>Recommended Mounting Distance</b>	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]	
<b>Operating / Storage Temperature</b>	-49 to 158°F [-45 to 70°C]	
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)	
<b>Protection Class</b>	II (double insulated)	
<b>Protection Type</b>	IP20	
<b>Approvals</b>	CE, UL Recognized File No. E234324, RoHS 2 compliant	

**Note:** To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

## 150W to 450W Touch-Safe PTC Fan Heaters

Part Number	Price	Part Number	Price	Heating Capacity <sup>1</sup>	Operating Voltage	Max. current (inrush)	Air flow, free blowing	Weight (approx.)
DIN Mount		Panel Mount						
<a href="#">028009-00</a>	\$119.00	<a href="#">028009-01</a>	\$119.00	150W	120V AC, 50/60 Hz	6.0 A	8 cfm [13.8 m³/h]	10.6 oz [301g]
<a href="#">028000-00</a>	\$119.00	<a href="#">028000-01</a>	\$119.00		230V AC, 50/60 Hz	12.0 A		
<a href="#">028119-00</a>	\$137.00	<a href="#">028119-01</a>	\$137.00	250W	120V AC, 50/60 Hz	6.0 A	32 cfm [54 m³/h]	17.6 oz [499g]
<a href="#">028110-00</a>	\$137.00	<a href="#">028110-01</a>	\$137.00		230V AC, 50/60 Hz	9.0 A	26 cfm [45 m³/h]	
<a href="#">028109-00</a>	\$151.00	<a href="#">028109-01</a>	\$151.00	400W	120V AC, 50/60 Hz	9.0 A	32 cfm [54 m³/h]	
<a href="#">028100-00</a>	\$151.00	<a href="#">028100-01</a>	\$151.00		230V AC, 50/60 Hz	15.0 A	26 cfm [45 m³/h]	

Note: <sup>1</sup>At 68°F [20°C] ambient temperature @ 60Hz

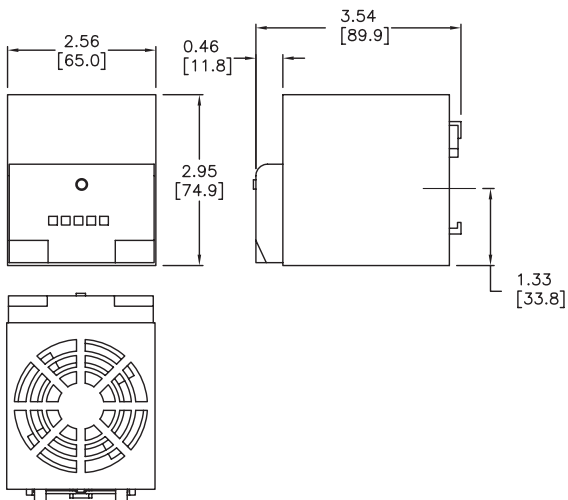


# 150W to 450W Touch-Safe PTC Fan Heaters

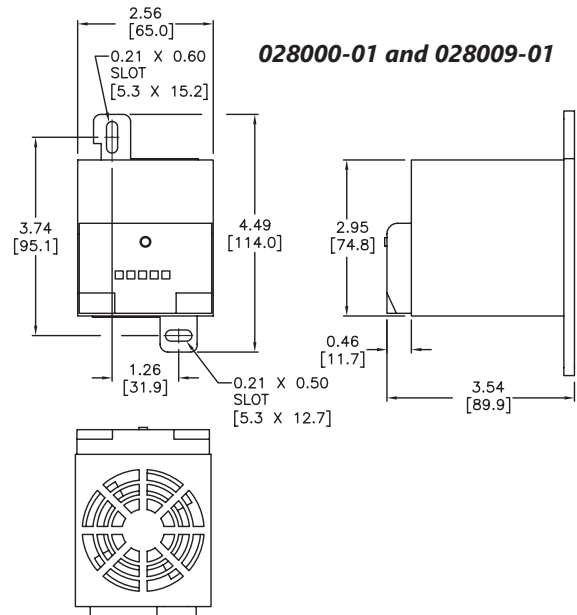


## Dimensions

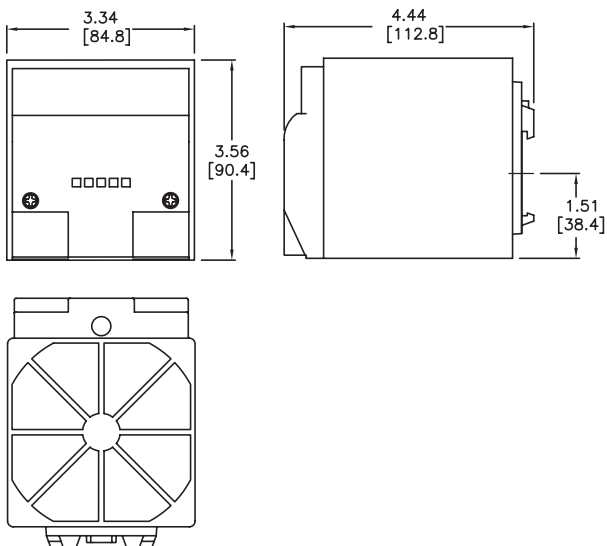
### 028000-00 and 028009-00



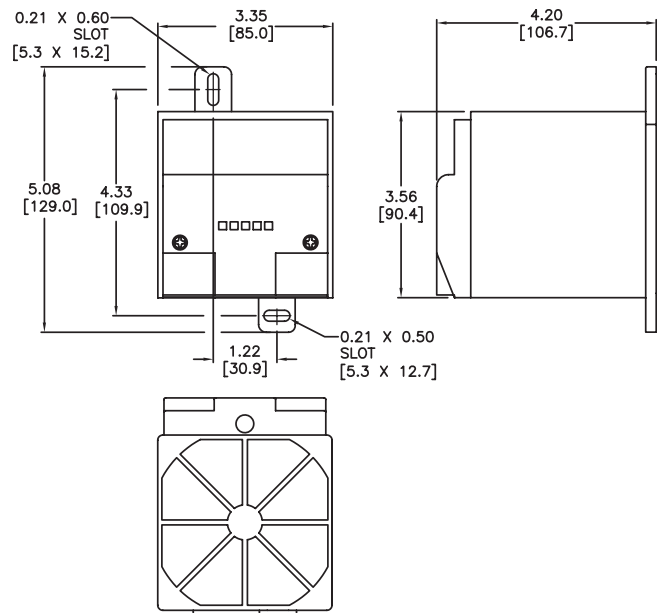
### 028000-01 and 028009-01



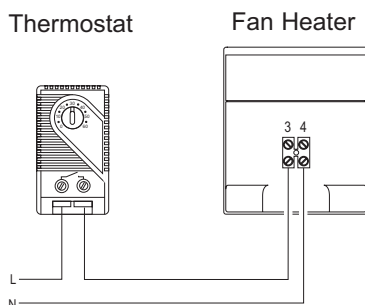
### 028100-00, 028109-00, 028110-00, 028119-00



### 028100-01, 028109-01, 028110-01, 028119-01



## Wiring Diagram



Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# 250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat



Panel Mount Fan Heater



DIN Mount Fan Heater

## Applications

These touch-safe positive temperature coefficient fan heaters prevent the formation of condensation and provide evenly distributed interior air temperature in enclosures. The touch-safe plastic housing and the small size make these heaters ideal for use in enclosures with a high packing density. Each heater is equipped with a fixed set point thermostat and is easily wired via external pressure clamps. DIN rail or screw tab mounting options are available. The robust panel mounting is particularly suitable for applications with high vibration.

## Features

- Compact fan heater
- Integrated pre-set thermostat
- Quiet operation
- Heating power adjusts to ambient temperature
- DIN rail or panel mount available



### 250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat Specifications

Heating Element	DIN Mount	Panel Mount
	PTC Resistor - Temperature limiting	
Surface Temperature	250W: max. 122°F [50°C] 400W: max 149°F [65°C] Each except upper protective grill at 68°F [20°C] ambient temperature	
Overheat Protection	Built-in temperature limiter	
Axial Fan, Ball Bearing	Service life 40,000h at 104°F [40°C]	
Axial Fan, Free Blowing	32 cfm [54 m³/h] @ 120V AC; 26 cfm [45 m³/h] @ 230V AC	
Connection	2-pole dual pressure clamp 14 AWG [2.5 mm²], max. solid wire 16 AWG [1.5 mm²] max. stranded wire with wire end ferrule	
Housing	Plastic, UL 94V-0, black	
Mounting	Clip for 35mm DIN rail, EN 60715	Screw mount - M5 screws and washer (not included)
Mounting Position	Vertical airflow (air outlet up), horizontal airflow	
Operating / Storage Temperature	-40 to 158°F [-40 to 70°C] / -49 to 158°F [-45 to 70°C]	
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]	
Operating / Storage Humidity	Max. 90% RH (non-condensing)	
Protection Class	II (double insulated)	
Protection Type	IP20	
Approvals	CE, UL Recognized File No. E150057, RoHS 2 compliant	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

### 250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat

Part Number	Price	Part Number	Price	Heating Capacity <sup>1</sup>	Operating Voltage	Max. current (inrush)	Switch-offTemp <sup>2</sup>	Switch-onTemp <sup>2</sup>	Weight (approx.)
DIN Mount		Panel Mount							
<a href="#">028219-06</a>	\$151.00	<a href="#">028219-08</a>	\$151.00	250W	120V AC, 50/60 Hz	6.0 A	59°F [15°C]	41°F [5°C]	17.6 oz[499g]
<a href="#">028210-06</a>	\$151.00	<a href="#">028210-08</a>	\$151.00		230V AC, 50/60 Hz	9.0 A			
<a href="#">028209-06</a>	\$164.00	<a href="#">028209-08</a>	\$164.00	400W	120V AC, 50/60 Hz	9.0 A	59°F [15°C]	41°F [5°C]	
<a href="#">028200-06</a>	\$164.00	<a href="#">028200-08</a>	\$164.00		230V AC, 50/60 Hz	15.0 A			

Notes: <sup>1</sup> At 68°F [20°C] ambient temperature @ 60Hz

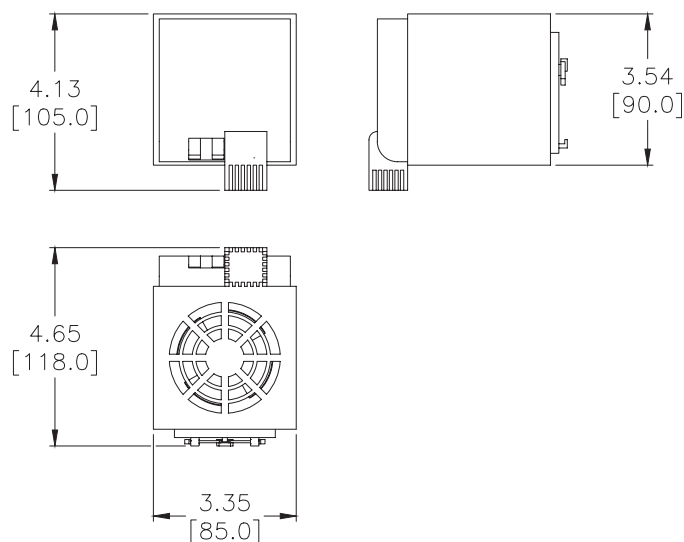
<sup>2</sup> Tolerance of ±9°F [±5 K]

# 250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat

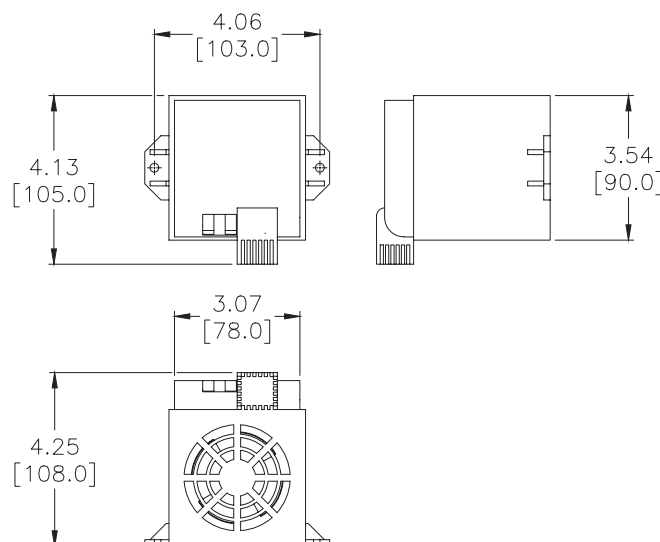


## Dimensions

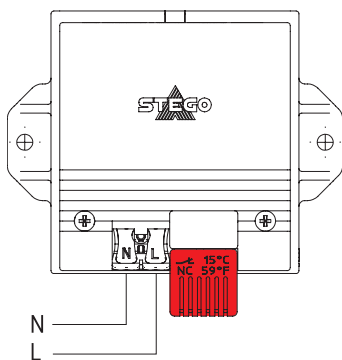
### DIN Rail Mount



### Panel Mount



## Wiring Diagram



Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# 500W to 700W Space-Saving Fan Heaters



35mm DIN Rail Mounting

## Applications

These compact high-performance fan heaters help to prevent the formation of condensation and provide an evenly distributed interior air temperature in enclosures with electric/electronic components. These fan heaters are available with two different mounting systems – panel mounting or 35mm DIN rail mounting.

## Features

- Compact size
- Flat design
- Built-in overheat protection
- DIN rail or panel mountable



Panel Mounting

500W to 700W Space-Saving Fan Heaters Specifications		
Heating Element	35mm DIN Rail Mount	Panel Mount
	High performance cartridge	
Temperature Safety Cut-Out	With automatic reset and second-tier one shot fuse	
Axial Fan, Ball Bearing	Service life 50,000h at 77°F [25°C]	
Connection	2-pole dual pressure clamp 14 AWG [2.5 mm²], max. solid wire 16 AWG [1.5 mm²] max. stranded wire with wire end ferrule	
Housing	Plastic, UL 94V-0, black	
Mounting	Twist clip for 35mm DIN rail, EN 60715	M6 screws and washers (not included), torque 2 N·m max.
Mounting Position	Vertical airflow (air outlet up)	
Operating/Storage Temperature	-49 to 158°F [-45 to 70°C]	
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom: 3.94in [100 mm] Above: 5.91.0 in [25 mm] [150mm]	
Operating / Storage Humidity	Max. 90% RH (non-condensing)	
Protection Class	Heater: II (double insulated), fan: I (grounded)	
Protection Type	IP20	
Approvals	CE, UL Recognized File No. E234324, RoHS 2 compliant	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

500W to 700W Space-Saving Fan Heaters								
Part Number	Price	Part Number	Price	Heating Capacity <sup>1</sup>	Operating Voltage	Max. current (inrush)	Air flow, free blowing	Weight (approx.)
DIN Rail Mount		Panel Mount						
<a href="#">030849-00</a>	\$235.00	<a href="#">030849-01</a>	Retired	500W	120V AC, 50/60 Hz	6.3 A	88 cfm[150 m³/h]	49.6 oz[1406g]
<a href="#">030840-00</a>	Retired	<a href="#">030840-01</a>	Retired		230V AC, 50/60 Hz	3.15 A		
<a href="#">030839-00</a>	\$240.00	<a href="#">030839-01</a>	Retired	600W	120V AC, 50/60 Hz	6.3 A		
<a href="#">030830-00</a>	Retired	<a href="#">030830-01</a>	Retired		230V AC, 50/60 Hz	3.15 A		
<a href="#">030829-00</a>	\$245.00	<a href="#">030829-01</a>	\$245.00	700W	120V AC, 50/60 Hz	8.0 A		
<a href="#">030820-00</a>	\$245.00	<a href="#">030820-01</a>	\$245.00		230V AC, 50/60 Hz	4.0 A		

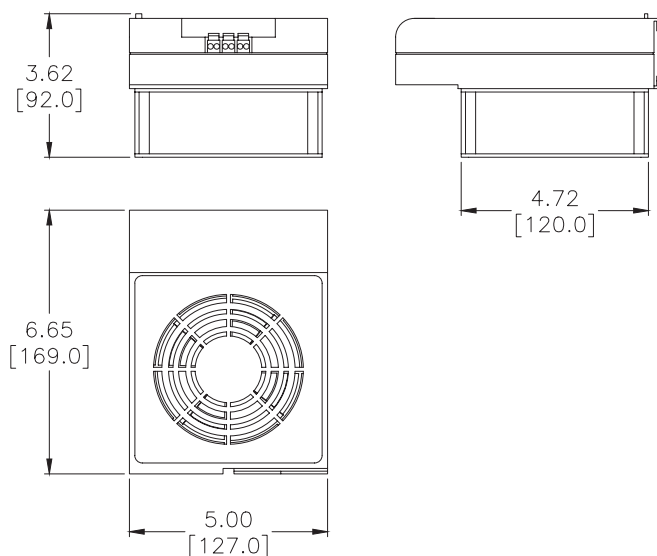
Notes: At 68°F [20°C] ambient temperature @ 60Hz.  
Please consider [030829-00](#) or [030829-01](#) for a comparable replacement.

# 500W to 700W Space-Saving Fan Heaters

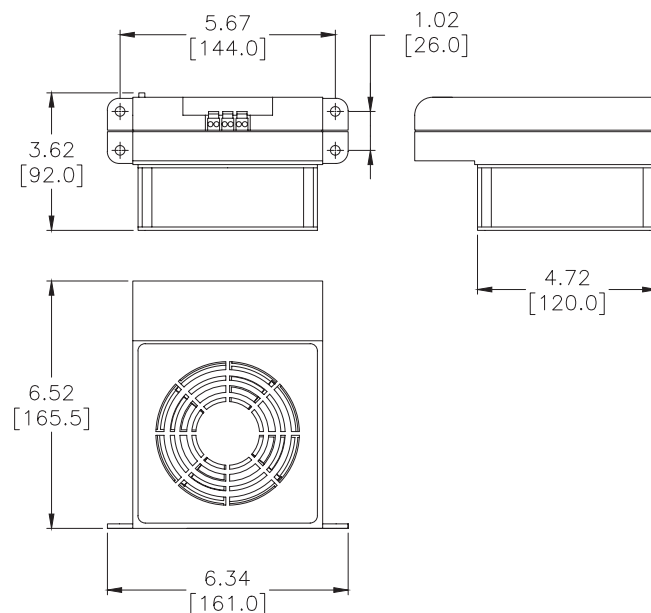


## Dimensions

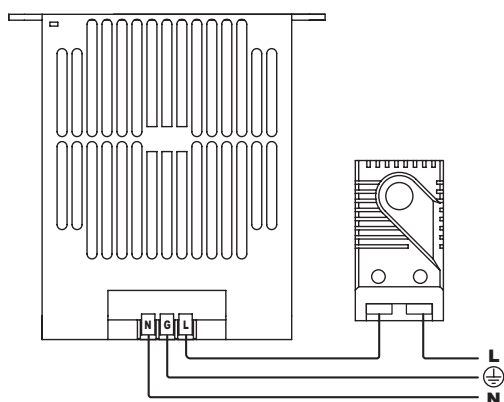
### Twist Clip Mounting Models



### Screw Mounting Models



## Wiring Diagram



Note: When wiring 230 volt units for North American installations, "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# Enclosure Fan Heaters



## Applications

The compact high performance fan heater prevents formation of condensation and frost and provides evenly distributed interior air temperatures in enclosures with electronic components. The fan heater includes an integrated electronic thermostat with either an internal or external sensor. External sensors are sold separately in three cable length options. The external sensor can be positioned freely anywhere in the enclosure for precise measurements of temperature and humidity.

## Features

- High DC heating performance
- Integrated adjustable thermostat
- Small hysteresis
- Integrated switch module
- Screw or DIN rail mount
- Optical indicator (LED)
- Hot air exhausts upward



Enclosure Heater p/n [130921-16](#)



Enclosure Heater p/n [130921-17](#)



## General Specifications

<b>Heating element</b>	High performance cartridge
<b>Overheat protection</b>	Automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
<b>Heater body</b>	Extruded aluminum profile
<b>Connection</b>	2-pole Push-In connection clamp stranded wire <sup>1</sup> AWG 16 [1.5 mm <sup>2</sup> ] with strain relief; max. AWG 12 [2.5 mm <sup>2</sup> ]
<b>Axial fan, ball bearing</b>	Service life 50,000 hr at +77°F (+25°C)
<b>Air flow, free flowing</b>	94 cfm (160m <sup>3</sup> /hr)
<b>Housing</b>	Plastic, UL 94V-0, black
<b>Mounting</b>	M5 screws and washers (not included), torque 2 N·m max.
<b>Dimensions</b>	3.9 x 5.7 x 6.5 in [100 x 145 x 166 mm]
<b>Weight</b>	Approx. 2.86 lbs. [1.3 kg]
<b>Operating temperature</b>	-4 to 167°F [-20 to 75°C]
<b>Thermostat setting range</b>	14 to 122°F
<b>Thermostat switching difference</b>	5.4°F at 77°F
<b>Thermostat switching tolerance</b>	1.8°F
<b>Protection type</b>	IP20
<b>Approvals</b>	CE, EAC, UL Recognized File No. E234324

Note: When connecting with stranded wires, wire end ferrules must be used.

## Enclosure Fan Heaters

Part Number	Price	Operating Voltage	Heating Capacity	Temperature Sensor	Mounting Style	Drawing Link
<a href="#">030921-16</a>	\$301.00	24 VDC	200W	internal	Foot	<a href="#">PDF</a>
<a href="#">030921-17</a>				external		<a href="#">PDF</a>
<a href="#">030973-16</a>	\$308.00	56 VDC	800W	internal	DIN rail/panel	<a href="#">PDF</a>
<a href="#">130921-16</a>	\$305.00	24 VDC	200W	internal		<a href="#">PDF</a>
<a href="#">130921-17</a>				external		<a href="#">PDF</a>

## External Temperature Sensors

Part Number	Price	Cable Length
<a href="#">267071</a>	\$55.00	1m
<a href="#">267072</a>	\$56.00	2m
<a href="#">267126</a>	\$72.00	3m

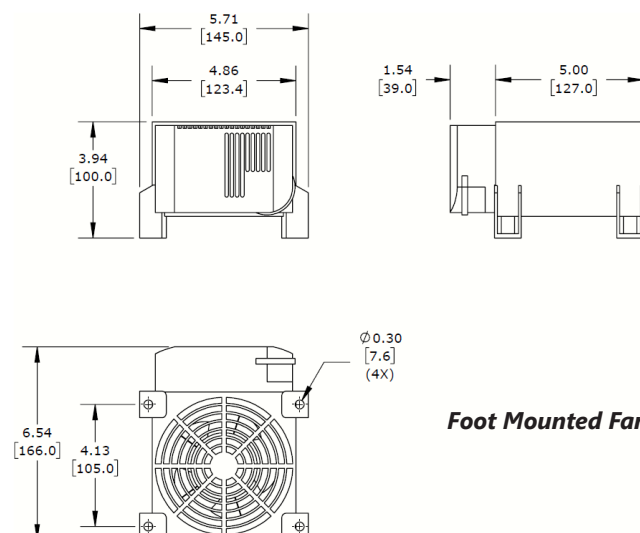


Sensor p/n [267071](#)

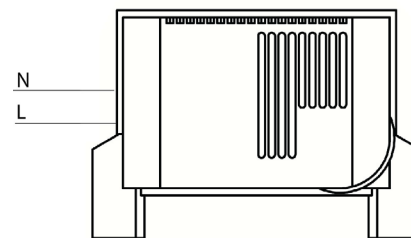
# Encloser Fan Heaters



## Dimensions

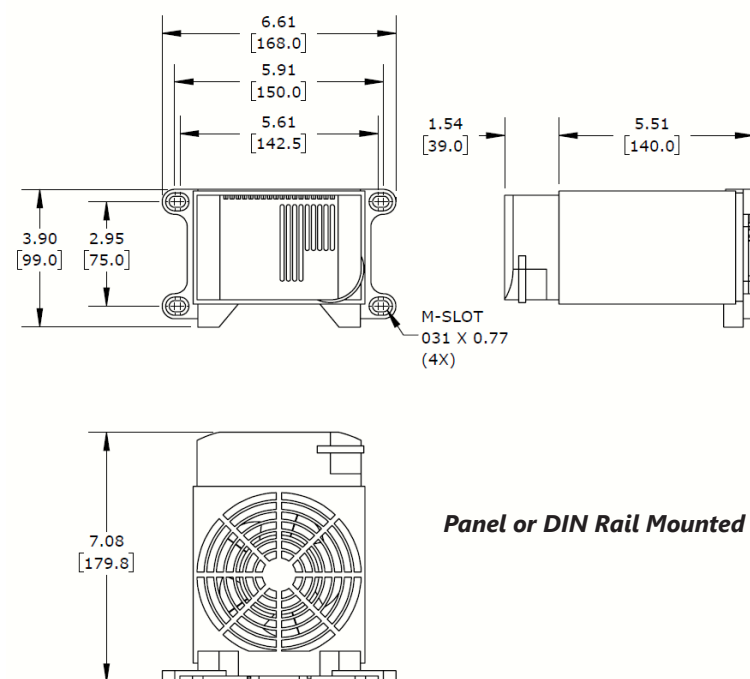


## Wiring Diagram

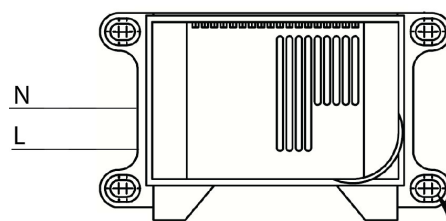


Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

## Dimensions



## Wiring Diagram



Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.



# 950W Fan Heaters



**Foot Mounted Fan Heaters**



**Panel or DIN Rail Mounted**

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automation-direct.com](http://www.automation-direct.com)

## Applications

These fan heaters are designed to prevent the formation of condensation and ensure an evenly distributed interior air temperature in enclosures. These fan heaters are available with an integrated thermostat for temperature control, pre-set hygrostat for humidity control, or without integral controls.

## Features

- Compact design
- Available with integrated adjustable thermostat, fixed hygrostat or without integral controls
- Double insulated plastic housing
- Built-in overheat protection



### 950W Fan Heaters Specifications

<b>Heating Element</b>	High-performance cartridge
<b>Overheat Protection</b>	With automatic reset and second-tier one shot fuse
<b>Heater Body</b>	Extruded aluminum
<b>Axial Fan, Ball Bearing</b>	Service life 50,000h at 77°F [25°C]
<b>Connection</b>	2-pole terminal with strain relief 16 AWG [1.5 mm <sup>2</sup> ] max. solid wire or stranded wire with wire end ferrules, 0.8 N·m max. clamping torque
<b>Housing</b>	Plastic, UL 94V-0, black
<b>Mounting - Footed</b>	M5 screws (not included)
<b>Mounting - Panel or DIN Rail</b>	Clip for 35mm DIN rail, EN 60715 or M6 screws (not included)
<b>Mounting Position</b>	Horizontal only
<b>Recommended Mounting Distance</b>	Sides: 0.79in [20 mm] Bottom: 0.91in [23.1mm] Above: 3.94in [100 mm]
<b>Operating / Storage Temperature<sup>1</sup></b>	-49 to 158°F [-45 to 70°C]
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)
<b>Protection Class</b>	II (double insulated)
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, UL Recognized File No. E234324, RoHS 2 compliant
<b>Note:</b> <sup>1</sup> Operating temperature of heater with integrated hygrostat: +32° to +140°F [0° to +60°C]	

### 950W Foot Mounted Fan Heater

Part Number	Price	Heating Capacity	Operating Voltage	Max Inrush	Setting Range <sup>1</sup>	Air flow, free blowing	Weight (approx.)
<a href="#">030510-00</a>	\$248.00	950W	230V AC, 50/60 Hz	4.0 A continuous	0 to 60°C	94 cfm [160 m <sup>3</sup> /h]	49.6 oz [1406g]

**Note:** <sup>1</sup> Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]

### 950W Panel or DIN Rail Mounted Fan Heaters

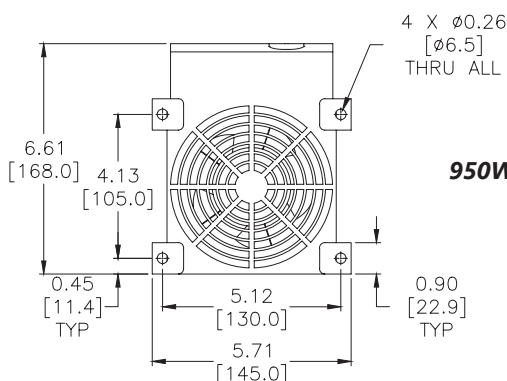
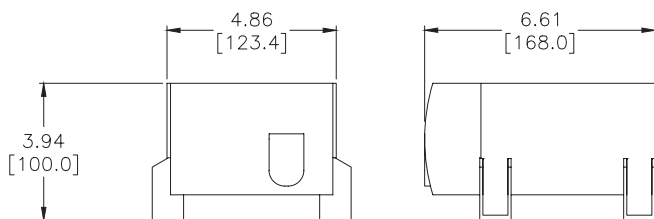
Part Number	Price	Heating Capacity	Operating Voltage	Max Inrush	Setting Range <sup>1</sup>	Air flow,free blowing	Weight (approx.)
<a href="#"><u>130599-00</u></a>	\$261.00	950W	120V AC, 50/60 Hz	8.0 A continuous	32 to 140°F	94 cfm[160 m³/h]	49.6 oz[1406g]
<a href="#"><u>130599-02</u></a>	\$257.00				none (no integrated controls)		
<a href="#"><u>130510-00</u></a>	\$274.00		230V AC, 50/60 Hz	4.0 A continuous	0 to 60°C		
<a href="#"><u>130510-03</u></a>	Retired	Please consider <a href="#"><u>130510-00</u></a> for a comparable replacement.					
Note 1: Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]							

**Note 1:** Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]

# 950W Fan Heaters

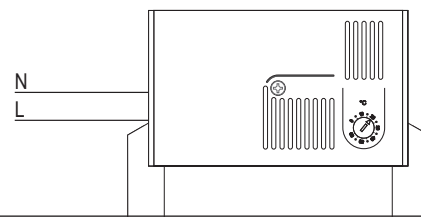


## Dimensions



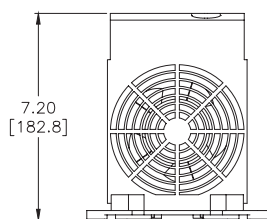
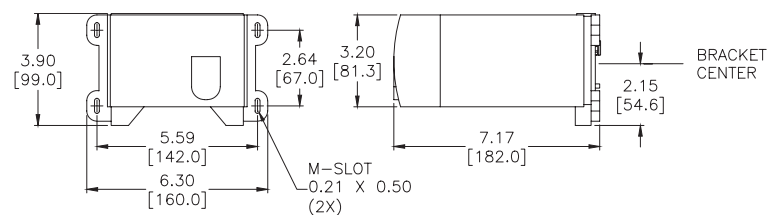
**950W Foot Mounted Fan Heaters**

## Wiring Diagram



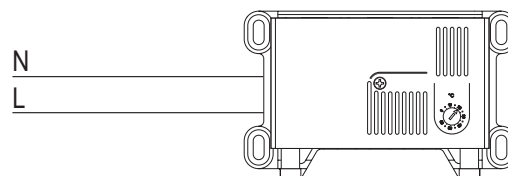
Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

## Dimensions



**950W Panel or DIN Rail Mounted Fan Heaters**

## Wiring Diagram



Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# 1000W Compact PTC Fan Heaters



Compact Fan Heater



Compact Fan Heaterw/Integrated Thermostat

## Applications

These compact fan heaters are designed to prevent condensation and ensure an evenly distributed air temperature in enclosures. The plastic double insulated housing provides protection against contact with current-carrying components. This series is available with an optional, integrated fixed-point thermostat. These heaters were designed to accommodate DIN rail or panel mounting.

## Features

- Compact design
- High heating performance
- Double insulated plastic housing
- Panel or DIN Rail Mount
- Optional integrated fixed thermostat



## 1000W Compact PTC Fan Heaters Specifications

<b>Heating Element</b>	PTC resistor - temperature limiting
<b>Overheat Protection</b>	Built-in temperature limiter
<b>Surface Temperature</b>	Max. 176°F [80°C], except upper protective grillat 68°F [20°C] ambient temperature
<b>Air Outlet Temperature</b>	Max 257°F [125°C], 2in [50mm] above grill
<b>Axial Fan, Ball Bearing</b>	Service life 70,000h at 77°F [25°C]
<b>Air Flow, Free Blowing</b>	37 cfm [63 m³/h]
<b>Connection</b>	Male power insert connector according to IEC 320 C18
<b>Housing</b>	Plastic, UL 94V-0, black
<b>Mounting</b>	Clip for 35mm DIN rail, EN 60715 or M5 screws (not included) – tightening torque 2 N·m max.
<b>Mounting Position</b>	Air flow directed up
<b>Recommended Mounting Distance</b>	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]
<b>Operating / Storage Temperature</b>	-40 to 140°F [-40 to 60°C] / -40 to 158°F [-40 to 70°C]
<b>Protection Class</b>	II (double insulated)
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, UL Recognized File No. E234324, RoHS 2 compliant
<b>Notes:</b> Connectors and cables for electrical connection are not included with the heater. Connection cables are available as accessories.	

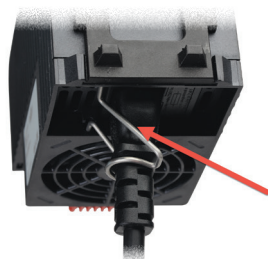
Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

## 1000W Compact PTC Fan Heaters

Part Number	Price	Part Number	Price	Heating Capacity <sup>1</sup>	Operating Voltage	Max. current (inrush)	Integrated Thermostat	Switch-OffTemp <sup>2</sup>	Switch-OnTemp <sup>2</sup>	Weight (approx.)
<b>DINMount</b>		<b>PanelMount</b>								
<a href="#">032099-00</a>	Retired	<a href="#">032099-01</a>	Retired	1000W	100-120V AC 50/60 Hz	18.0 A	NO	—	—	16.5 oz [468g]
<a href="#">032029-00</a>	\$343.00	<a href="#">032029-01</a>	\$343.00		100-120V AC 50/60 Hz	18.0 A	YES	59°F [15°C]	41°F [5°C]	
<a href="#">032020-00</a>	\$343.00	<a href="#">032020-01</a>	\$343.00		220-240V AC 50/60 Hz	12.0 A		59°F [15°C]	41°F [5°C]	

Notes: <sup>1</sup> At 77°F [25°C] ambient temperature

<sup>2</sup> Tolerance of ±9°F [±5K]



Retaining Clip

## Accessories

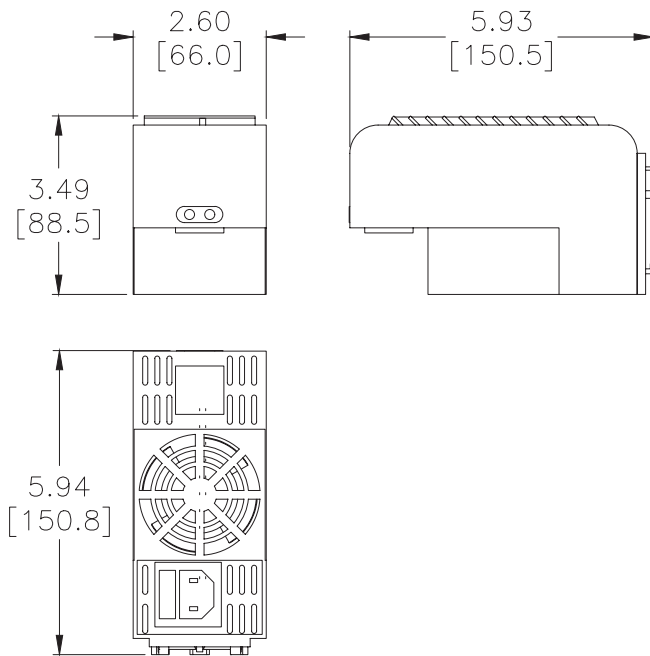
Part Number	Description	Price
<a href="#">244380</a>	2m [6.5 ft] cable for 1000W PTC heater	\$13.00
<a href="#">237009</a>	Retaining clip for <a href="#">244380</a>	\$2.75

# 1000W Compact PTC Fan Heaters

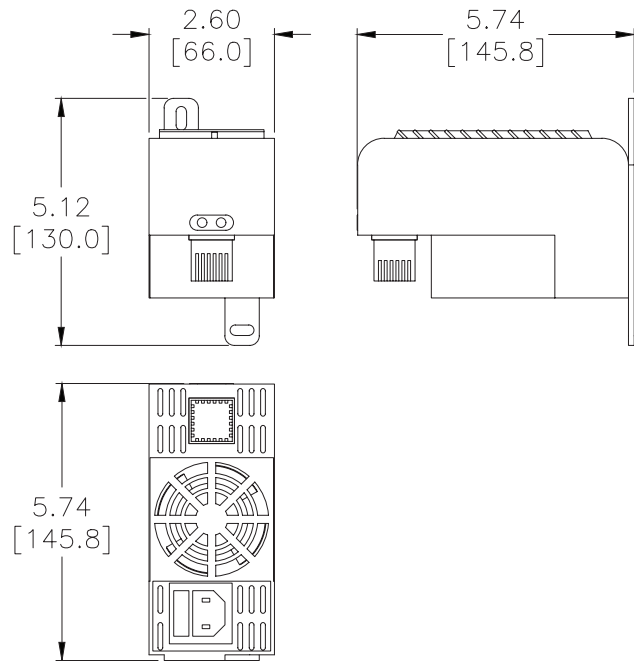


## Dimensions

**Compact PTC Fan Heaters**



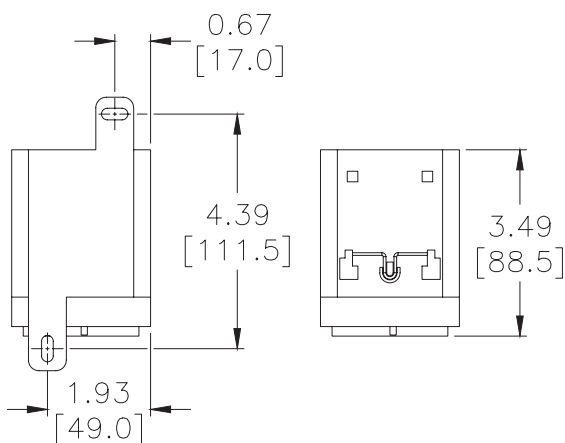
**Fan Heaters with Integrated Thermostat**



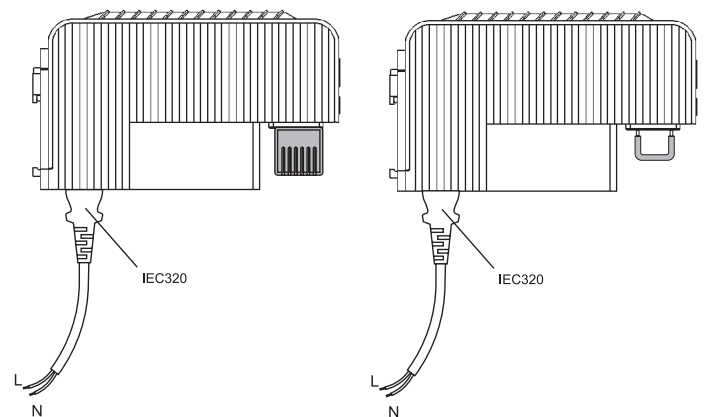
**View: back side**

**Panel Mount**

**DIN Rail Mount**



## Wiring Diagram



Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# 1200W PTC Fan Heaters



**Foot Mounted PTC Fan Heaters**



**Panel or DIN Rail Mounted PTC Fan Heaters**

## Applications

These compact high-performance PTC fan heaters are designed to prevent formation of condensation and provide an evenly distributed interior air temperature in enclosures. These fan heaters were designed as stationary units for installation on the bottom of enclosures.

## Features

- Compact design
- Built-in overheat protection
- Double insulated plastic housing
- Integrated adjustable thermostat



1200W PTC Fan Heaters Specifications	
<b>Heating Element</b>	PTC resistor – temperature limiting
<b>Overheat Protection</b>	Built-in temperature limiter
<b>Axial Fan, Ball Bearing</b>	Service life 50,000h at 77°F [25°C]
<b>Connection</b>	2-pole terminal with strain relief 16 AWG [1.5 mm <sup>2</sup> ] max. solid wire or stranded wire with wire end ferrules, 0.8 N·m max. clamping torque
<b>Housing</b>	Plastic, UL 94V-0, black
<b>Mounting - Footed</b>	M5 screws (not included)
<b>Mounting - Panel or DIN Rail</b>	Clip for 35mm DIN rail, EN 60715 or M6 screws (not included)
<b>Mounting Position</b>	Horizontal
<b>Recommended Mounting Distance</b>	Sides: 1.97in [50 mm] Bottom: 0.91in [23.1mm] Above: 3.94in [100 mm]
<b>Operating / Storage Temperature</b>	-49 to 158°F [-45 to 70°C]
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)
<b>Protection Class</b>	II (double insulated)
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, UL Recognized File No. E234324 and E150057, RoHS 2 compliant

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

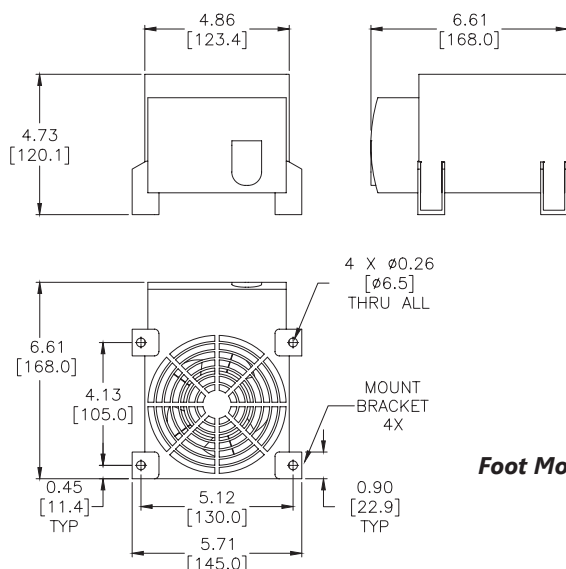
1200W Foot Mounted PTC Fan Heaters							
Part Number	Price	Heating Capacity <sup>1</sup>	Operating Voltage	Max. current (inrush)	Setting Range <sup>2</sup>	Air flow, free blowing	Weight (approx.)
<a href="#"><u>030609-00</u></a>	\$270.00	1200W	120V AC, 50/60 Hz	16.0 A	32 to 140°F	94 cfm [160 m³/h]	41.6 oz [1179g]
<a href="#"><u>030600-00</u></a>	\$270.00		230V AC, 50/60 Hz	13.0 A	0 to 60°C		
Notes: <sup>1</sup> At 68°F [20°C] ambient temperature							
<sup>2</sup> Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]							

1200W Panel or DIN Rail Mounted PTC Fan Heaters							
Part Number	Price	Heating Capacity <sup>1</sup>	Max. Current (Inrush)	Operating Voltage	Setting Range <sup>2</sup>	Air flow,free blowing	Weight (approx.)
<a href="#"><u>130609-00</u></a>	\$315.00	1200W	16.0 A	120V AC, 50/60 Hz	32 to 140°F	94 cfm[160 m³/h]	41.6 oz [1179g]
<a href="#"><u>130600-00</u></a>	\$315.00		13.0 A	230V AC, 50/60 Hz	0 to 60°C		
Notes: <sup>1</sup> At 68°F [20°C] ambient temperature <sup>2</sup> Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]							

# 1200W PTC Fan Heaters

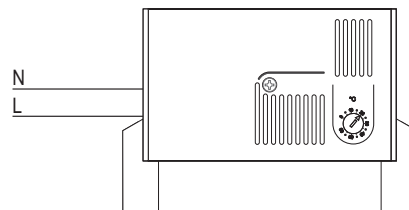


## Dimensions



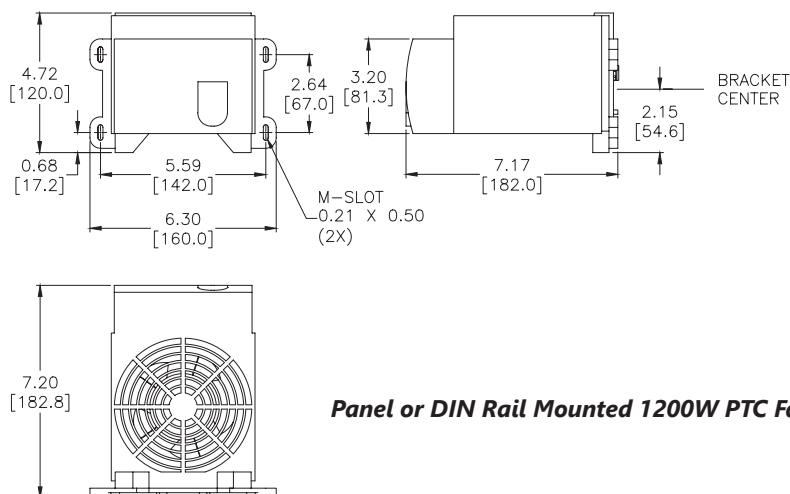
**Foot Mounted 1200W PTC Fan Heaters**

## Wiring Diagram



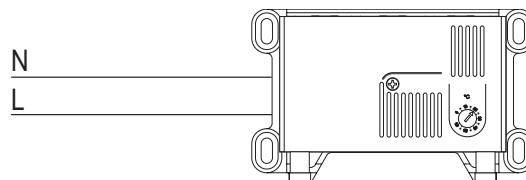
Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

## Dimensions



**Panel or DIN Rail Mounted 1200W PTC Fan Heaters**

## Wiring Diagram



Note: When wiring 230 volt units for North American installations "L" (line) and "N" (neutral) will be used as "L1" (line1) "L2" (line2) respectively with no neutral connection.

# Rack Mount Fan Trays



Fan Tray p/n [019310-00](#)

## Applications

Compact high performance fan tray for forced circulation of air in switch and server enclosures and for concerted cooling of 19in. rack mounted component groups. Natural convection is improved and the formation of localized hot pockets is avoided.

## Features

- High air output
- Long service life
- Ball bearing fans
- Ready for connection. Plug included, cable required.
- Optical function indicator
- 115VAC Operating Voltage
- UL Recognized File: E234324



General Specifications	
<b>Axial fans, ball bearing</b>	Service life 50,000 hr at 25°C (77°F), 65 % RH
<b>Material</b>	Front panel: aluminum, bright anodized; casing: steel sheet, electro-galvanized
<b>Optical indicator</b>	Integrated in front panel
<b>Connection</b>	Appliance power inlet on rear of casing, plug included
<b>Fitting position</b>	Vertical airflow (air outlet up)
<b>Operating/Storage temperature</b>	-10 to 60°C (14 to 140°F) / -40 to 70°C (-40 to 158°F)
<b>Operating/Storage humidity</b>	Max. 90 % RH (non-condensing)
<b>Protection type</b>	IP20

Rack Mount Fan Trays			
Part Number	Price	Airflow (CFM)	Drawing Links
<a href="#">019310-00</a>	\$211.00	339	<a href="#">PDF</a>
<a href="#">019510-00</a>	\$653.00	1016	<a href="#">PDF</a>



# Accessories



Plug p/n [284200-00](#)



Plug p/n [284040-00](#)

## Applications

Pressure differentials in enclosures with a high degree of protection are a result of internal and external temperature changes. In the case of negative pressure or partial vacuum, dust and humidity can enter the enclosure through the door seal. When the air inside the enclosure cools down, condensation may occur because the humidity cannot escape the enclosure.

These plugs allow for controlled pressure compensation due to temperature variations. Even with a slight overpressure, a waterproof membrane inside the plug allows the humidity to escape whilst blocking water and dirt from entering the enclosure.

## Features

- Nickel plated aluminum or plastic
- Easy installation
- High reliability
- Allows for controlled pressure compensation

### Pressure Compensation Plugs

Part Number	Price	Size	Material	Thread Size	IP Rating	Drawing Links
<a href="#">284040-00</a>	\$25.50	17mm	Nickel plated aluminum	M12 x 1.5	IP67	<a href="#">PDF</a>
<a href="#">284200-00</a>	\$12.00	70mm	Plastic	M40 x 1.5	IP66 IPX9K	<a href="#">PDF</a>

# Enclosure Door Switch



013500-00

## Applications

The door switch can be used for switching a light when opening a door (NC), or to activate a fan when closing a door (NO). The version with single-pole double-throw contact (SPDT) can be used as a normally closed and/or normally open contact. The wide mechanical adjustment range of the door switch offers versatile mounting; the housing is adjustable within a 1-3/8in [35mm] range, while the screw flange with a slotted hole offers an additional 13/16in [21mm]. The travel of the switch is itself another 5/16in [8mm].

## Features

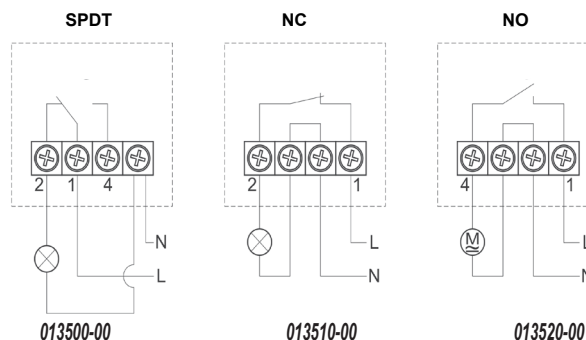
- Tool-free adjustable switch positioning
- Strain relief, suitable for a range of cable diameters
- High switching capacity
- Suitable for light LED 025 and other devices



Door Switch				
Part Number	Price	Contact	Suitable Wire	Drawing Link
<a href="#">013500-00</a>	\$38.00	Single-pole double throw (SPDT)	Solid wire or stranded wire with wire end ferrule AWG 18 to 17 [0.75 mm <sup>2</sup> to 1mm <sup>2</sup> ]	<a href="#">PDF</a>
<a href="#">013510-00</a>	\$38.00	Normally-closed (NC)	Solid wire or stranded wire with wire end ferrule AWG 18 to 16 [0.75 mm <sup>2</sup> to 1.5 mm <sup>2</sup> ]	<a href="#">PDF</a>
<a href="#">013520-00</a>	\$38.00	Normally-open (NO)	Solid wire or stranded wire with wire end ferrule AWG 18 to 16 [0.75 mm <sup>2</sup> to 1.5 mm <sup>2</sup> ]	<a href="#">PDF</a>

Door Switch Specifications	
<b>Max. Switching Capacity</b>	10A resistive / 1.5 A inductive @ AC 250V
<b>Service Life</b>	VDE: > 10,000 cycles; UL: > 6,000 cycles
<b>Connection</b>	4-pole clamp with strain relief, clamping torque 0.5 lb-in max.
<b>Housing</b>	Plastic according to UL 94V-0, gray/black
<b>Mounting</b>	M5 screws (not included)
<b>Mounting Position</b>	Variable
<b>Weight</b>	Approx. 1.8 oz [50g]
<b>Operating Temperature</b>	-4 to 185°F [-20 to 85°C]
<b>Storage Temperature</b>	-4 to 185°F [-20 to 85°C]
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)
<b>Protection Type</b>	IP20
<b>Approvals</b>	EAC, VDE, CE

## Wiring Diagram



# Top-Mount Fans and Vents

Part Number [018600-02](#)

## Applications

Top-mount filter fans and vents are used in enclosures from which warm air must be diverted due to increased heat development. The ready-to-connect and low-noise roof filter fan is used to expel warm air from within the enclosure. Alternatively, the roof exhaust filter provides passive ventilation. Fans come in two versions: one utilizes four small axial fans, improving reliability and maintaining continuous operations even if one of the fans should fail; the second uses a single high capacity fan.

**Note:** For pressure compensation the roof filter fan must always be operated in combination with a similarly sized intake filter or intake filter fan.

## Features

- Very low noise
- Minimal mounting depth
- High air volume
- High reliability
- Cover is hinged for easy filter replacement



General Specifications	
<b>Axial fan, ball bearing</b>	Service life min. 50,000 hr at 77°F [25°C] and 65% RH, aluminum fan body, plastic rotor
<b>Connection</b>	3-pole clamp (AC units), 2-pole clamp (DC units), AWG 14 [2.5 mm²], clamping torque 0.8 N·m max.
<b>Housing</b>	Plastic, UL 94V-0, light gray; UV light resistant according to UL 746C (f1)
<b>Filter mat</b>	ISO coarse 55% acc. to ISO 16890 (G3), init. grav. arrestance 57%
<b>Filter material</b>	Synthetic fiber with progressive construction, temperature resistant to 212°F, self-extinguishing class F1; moisture resistant to 100% RH, reusable – can be cleaned by washing or vacuuming
<b>Operating / Storage humidity</b>	Max. 90% RH (non-condensing)
<b>Protection type</b>	NEMA 3R, IP32
<b>Approvals</b>	EAC (all), VDE (AC 230 V only)

Top-mount Exhaust Fans							
Part Number	Price	Operating Voltage	Free Airflow	Fans per Unit	Cutout size in[mm]	Operating Temperature	Drawing Link
<a href="#">018600-02</a>	\$437.00	115 VAC	203 CFM	4	9.69 x 9.69 [246 x 246]	-13°F to 158°F	<a href="#">PDF</a>
<a href="#">018600-04</a>	\$502.00	24 VDC	203 CFM			14°F to 158°F	<a href="#">PDF</a>
<a href="#">018610-00</a>	\$299.00	230 VAC	338 CFM	1		14°F to 158°F	<a href="#">PDF</a>
<a href="#">018610-02</a>	\$377.00	115 VAC	338 CFM			-13°F to 158°F	<a href="#">PDF</a>
Notes: 1.Performance data for 115VAC fans is based on 60Hz. 2.Free airflow is measured with fan only. 3.Dimensions in inches [millimeters].							

Top Mount Exhaust Vent			
Part Number	Price	Enclosure Cutout in[mm]	Drawing Link
<a href="#">118600-00</a>	\$97.00	9.69 x 9.69 [246 x 246]	<a href="#">PDF</a>

# Enviro-Therm® Series Air Conditioners



## Applications

Enviro-therm® air conditioners are designed with an internal closed loop system to provide protection from dust, oil and water. For indoor and outdoor application. Rugged, energy efficient, and reliable cooling system.

## Construction

- Heavy gauge steel/stainless steel.
- Internal components are corrosion resistant.
- Captive screw fastened filter cover.
- Easy mounting flange hangers for installation included.
- High performance ball bearing fans.
- Cage clamp terminal connector.
- Oil and water-resistant gaskets installed.
- Carbon Steel units are painted RAL7035 Light Gray
- All 460 VAC units have an SCCR of 5kA

## Features

- Coils are designed as filterless units, fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable 8 layer aluminum mesh filters included.
- Compressor heater.
- Enclosure heater for low ambient temperatures.
- High temp alarm.
- Door-activated switch wiring provisions.
- Environmentally friendly and chlorine-free R-134a refrigerant.

## Listings

- UL File: E498756.



# Enviro-Therm® Series Air Conditioners

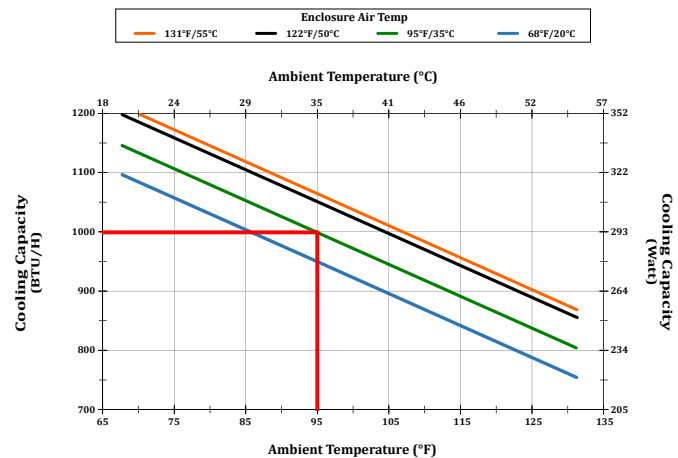


Enviro-Therm® Series Air Conditioners Specifications									
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	For Enclosure NEMA Ratings	Housing Material	Unit Weight	Drawing Links
<a href="#">SCE-AC1000B120V</a>	\$2,485.00	1000 BTU/H	115 VAC	8A	2.9 A	3R, 4 & 12	Carbon Steel	35.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC1000B120VSS</a>	\$3,753.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1000B120VSS6</a>	\$4,313.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1000B230V</a>	\$2,485.00		230 VAC	5A	1.5 A	3R, 4 & 12	Carbon Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1000B230VSS</a>	\$3,753.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1000B230VSS6</a>	\$3,858.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1870B120V</a>	\$2,697.00	1870 BTU/H	115 VAC	20A	5.6 A	3R, 4 & 12	Carbon Steel	71.5 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC1870B120VSS</a>	\$4,076.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1870B120VSS6</a>	\$5,092.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1870B230V</a>	\$2,332.00		230 VAC	10A	2.8 A	3R, 4 & 12	Carbon Steel	68.2 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC1870B230VSS</a>	\$3,914.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1870B230VSS6</a>	\$4,913.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1870B460V</a>	\$2,852.00		460 VAC	5A	1.6 A	3R, 4 & 12	Carbon Steel	71.5 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC1870B460VSS</a>	\$4,239.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC1870B460VSS6</a>	\$5,272.00						316 Stainless Steel		<a href="#">PDF</a>

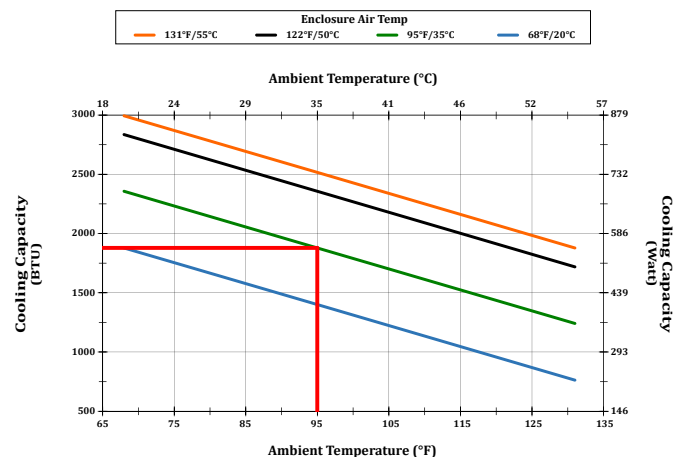
## Performance Graphs



### SCE-AC1000 Units



### SCE-AC1870 Units





# Enviro-Therm® Series Air Conditioners

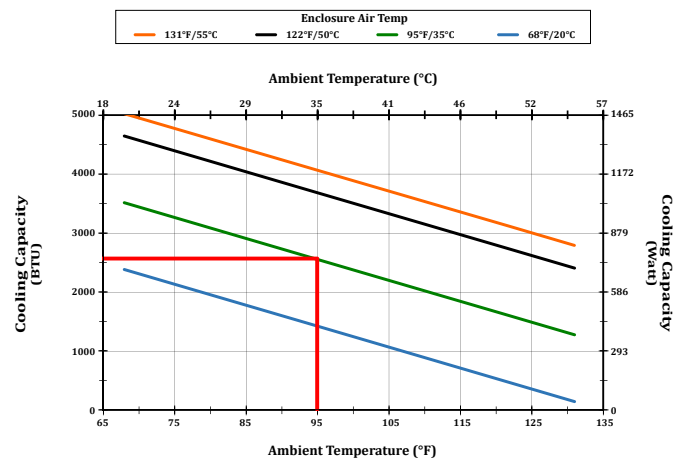


Enviro-Therm® Series Air Conditioners Specifications									
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	For Enclosure NEMA Ratings	Housing Material	Unit Weight	Drawing Links
<a href="#">SCE-AC2550B120V</a>	\$2,816.00	2550 BTU/H	115 VAC	22A	7.4 A	3R, 4 & 12	Carbon Steel	71.5 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC2550B120VSS</a>	\$4,202.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC2550B120VSS6</a>	\$5,232.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC2550B230V</a>	\$2,669.00		230 VAC	11A	3.7 A	3R, 4 & 12	Carbon Steel	68.2 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC2550B230VSS</a>	\$4,045.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC2550B230VSS6</a>	\$5,058.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC2550B460V</a>	\$2,974.00	2550 BTU/H	460 VAC	6A	2.1 A	3R, 4 & 12	Carbon Steel	71.5 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC2550B460VSS</a>	\$4,367.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC2550B460VSS6</a>	\$5,417.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC3400B120V</a>	\$3,415.00	3400 BTU/H	115 VAC	32A	10.8 A	3R, 4 & 12	Carbon Steel	91.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC3400B120VSS</a>	\$4,975.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC3400B120VSS6</a>	\$6,153.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC3400B230V</a>	\$3,254.00		230 VAC	16A	5.4 A	3R, 4 & 12	Carbon Steel	85.8 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC3400B230VSS</a>	\$4,796.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC3400B230VSS6</a>	\$5,955.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC3400B460V</a>	\$3,607.00		460 VAC	9.2 A	2.9 A	3R, 4 & 12	Carbon Steel	91.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC3400B460VSS</a>	\$5,172.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC3400B460VSS6</a>	\$6,372.00						316 Stainless Steel		<a href="#">PDF</a>

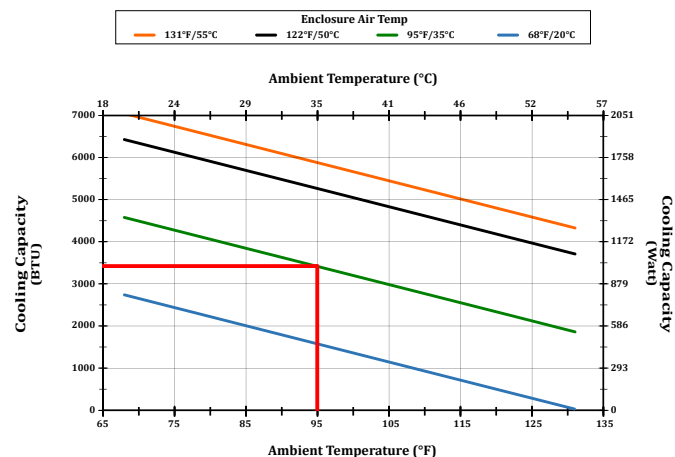
## Performance Graphs



SCE-AC2550 Units



SCE-AC3400 Units



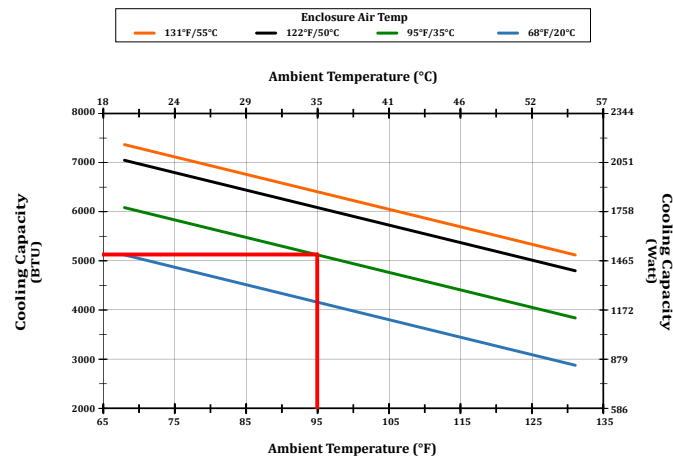
# Enviro-Therm® Series Air Conditioners



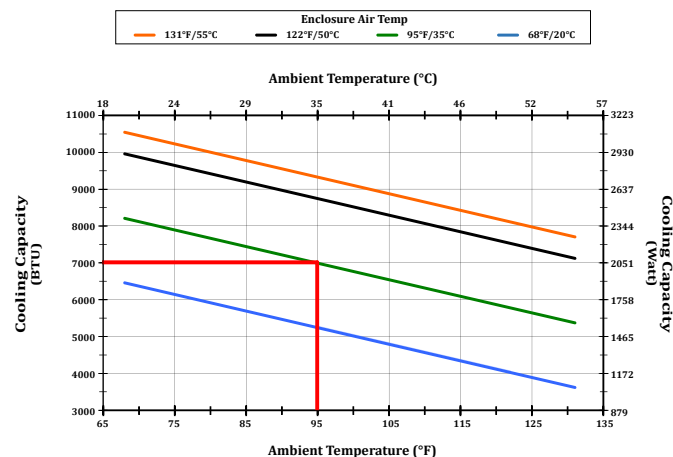
Enviro-Therm® Series Air Conditioners Specifications									
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	For Enclosure NEMA Ratings	Housing Material	Unit Weight	Drawing Links
<a href="#">SCE-AC5100B120V</a>	\$3,802.00	5100 BTU/H	115 VAC	32A	14.2 A	3R, 4 & 12	Carbon Steel	113.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC5100B120VSS</a>	\$5,520.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC5100B120VSS6</a>	\$6,758.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC5100B230V</a>	\$3,595.00		230 VAC	16A	7.1 A	3R, 4 & 12	Carbon Steel	108.9 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC5100B230VSS</a>	\$5,288.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC5100B230VSS6</a>	\$6,499.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC5100B460V</a>	\$4,012.00	5100 BTU/H	460 VAC	8A	3.6 A	3R, 4 & 12	Carbon Steel	113.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC5100B460VSS</a>	\$5,729.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC5100B460VSS6</a>	\$6,992.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC6800B120V</a>	\$4,657.00	6800 BTU/H	115 VAC	32A	17.2 A	3R, 4 & 12	Carbon Steel	113.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC6800B120VSS</a>	\$6,302.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC6800B120VSS6</a>	\$6,758.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC6800B230V</a>	\$4,283.00		230 VAC	16A	8.6 A	3R, 4 & 12	Carbon Steel	108.9 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC6800B230VSS</a>	\$5,945.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC6800B230VSS6</a>	\$7,405.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC6800B460V3</a>	\$4,548.00	6800 BTU/H	460 VAC	8.5 A	3.2 A	3R, 4 & 12	Carbon Steel	113.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC6800B460V3SS</a>	\$6,243.00					3R, 4, 4X & 12	304 Stainless Steel	133.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC6800B460V3SS6</a>	\$7,735.00						316 Stainless Steel		<a href="#">PDF</a>

## Performance Graphs

### SCE-AC5100 Units



### SCE-AC6800 Units





# Enviro-Therm® Series Air Conditioners

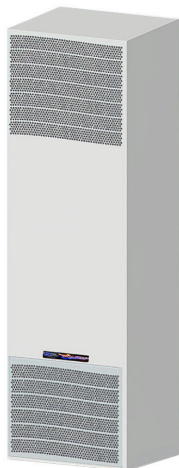
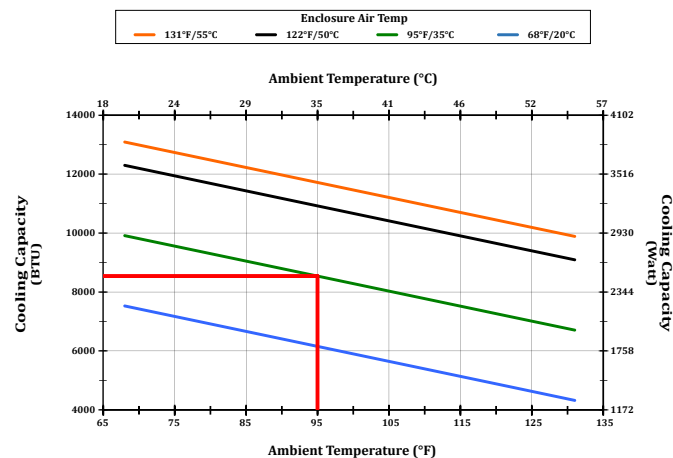


Enviro-Therm® Series Air Conditioners Specifications									
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	For Enclosure NEMA Ratings	Housing Material	Unit Weight	Drawing Links
<a href="#">SCE-AC8500B120V</a>	\$5,129.00	8500 BTU/H	115 VAC	45A	16.8 A	3R, 4 & 12	Carbon Steel	169.4 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC8500B120VSS</a>	\$7,326.00					3R, 4, 4X & 12	304 Stainless Steel	113.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC8500B120VSS6</a>	\$9,463.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC8500B230V</a>	\$4,870.00		230 VAC	22.5 A	8.4 A	3R, 4 & 12	Carbon Steel	165.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC8500B230VSS</a>	\$7,032.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC8500B230VSS6</a>	\$9,093.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC8500B460V</a>	\$5,229.00	10200 BTU/H	460 VAC	6.8 A	3.6 A	3R, 4 & 12	Carbon Steel	171.6 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC8500B460VSS</a>	\$7,511.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC8500B460VSS6</a>	\$9,670.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC10200B230V</a>	\$5,680.00		230 VAC	30A	9.9 A	3R, 4 & 12	Carbon Steel	169.4 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC10200B230VSS</a>	\$8,281.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC10200B230VSS6</a>	\$10,482.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC10200B460V3</a>	\$6,295.00	10200 BTU/H	460 VAC	8.1 A	3.5 A	3R, 4 & 12	Carbon Steel	176.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC10200B460V3SS</a>	\$8,942.00					3R, 4, 4X & 12	304 Stainless Steel	169.4 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC10200B460V3SS6</a>	\$11,213.00						316 Stainless Steel		<a href="#">PDF</a>

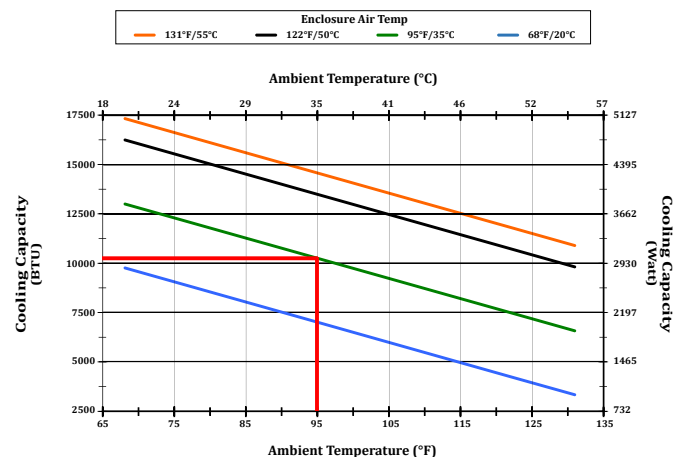
## Performance Graphs



SCE-AC8500 Units



SCE-AC10200 Units



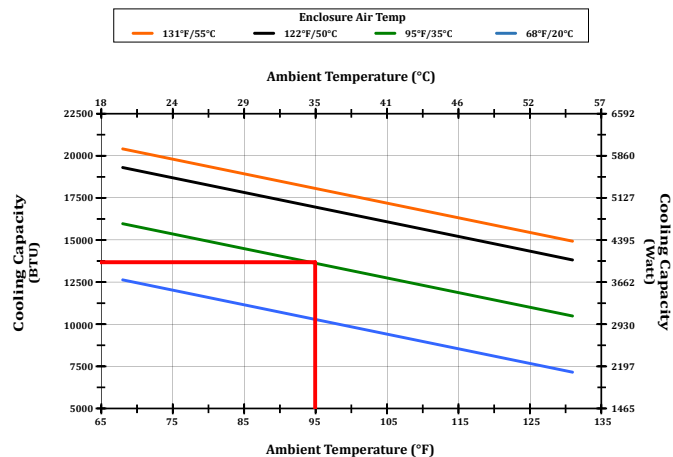
# Enviro-Therm® Series Air Conditioners

Enviro-Therm® Series Air Conditioners Specifications									
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	For Enclosure NEMA Ratings	Housing Material	Unit Weight	Drawing Links
<a href="#">SCE-AC13650B230V</a>	\$6,106.00	13650 BTU/H	230 VAC	50A	13.7 A	3R, 4 & 12	Carbon Steel	169.4 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC13650B230VSS</a>	\$9,076.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC13650B230VSS6</a>	\$11,365.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC13650B460V3</a>	\$7,120.00	460 VAC	460 VAC	8.5 A	5.0 A	3R, 4 & 12	Carbon Steel	176.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC13650B460V3SS</a>	\$10,188.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC13650B460V3SS6</a>	\$12,599.00						316 Stainless Steel		<a href="#">PDF</a>
<a href="#">SCE-AC21160B460V3</a>	\$10,520.00	21160 BTU/H	460 VAC	69A	9.8 A	3R, 4 & 12	Carbon Steel	188.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-AC21160B460V3SS</a>	\$13,625.00					3R, 4, 4X & 12	304 Stainless Steel		<a href="#">PDF</a>

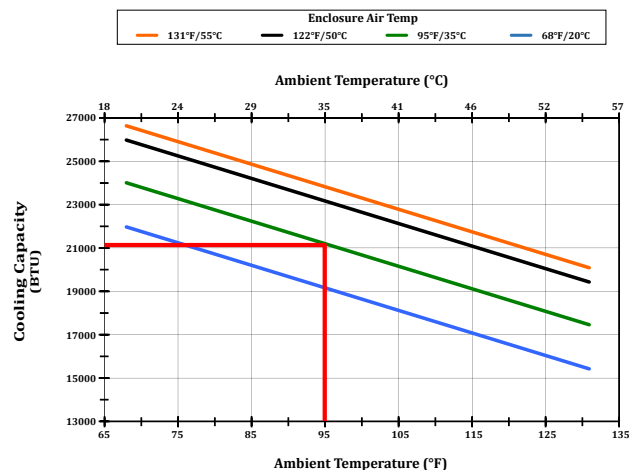
## Performance Graphs



SCE-AC13650 Units



SCE-AC21160 Units



# NextGen Enviro-Therm® Series Air Conditioners



## Applications

NextGen Enviro-Therm® air conditioners are designed with an internal closed loop system to provide protection from dust, oil and water. For use in most industrial area or application where low ambient is not a concern indoor and outdoor. Rugged, more energy efficient and reliable cooling system.

## Construction

- Carbon Steel Housing.
- Closed loop cooling system.
- Hermetically sealed rotary compressor.
- Internal components are corrosion resistant.
- Built in modbus communication via RS485 serial for unit control and monitoring.
- Active condensate system.
- Screw fastened filter cover.
- Easy handling removable lifting strap.
- Mounting flange hangers for easy installation, included.
- Digital touchpad programmable controller, viewable from outside the enclosure.
- Controller preset 95°F to cool adjustable 68°F to 122°F.
- Temperature differential hysteresis 5.4°F.
- High performance ball bearing fans.
- All 460 VAC units have an SCCR of 5kA.

## Features

- Coils are designed as filterless units, fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable aluminum mesh filters included.
- High temp alarm preset to 131°F.
- Door activated switch wiring provisions provided for easy installation.
- Environmentally friendly and chlorine-free R-134a refrigerant.

## Listings

- Can be used in NEMA 3R, 4, and 12 rated enclosures.
- UL File: E498756.



# NextGen Enviro-Therm® Series Air Conditioners



Your Enclosure Source®

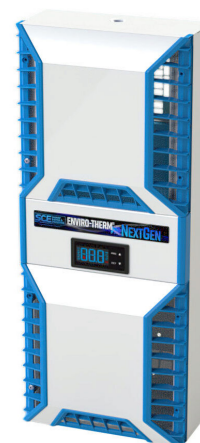
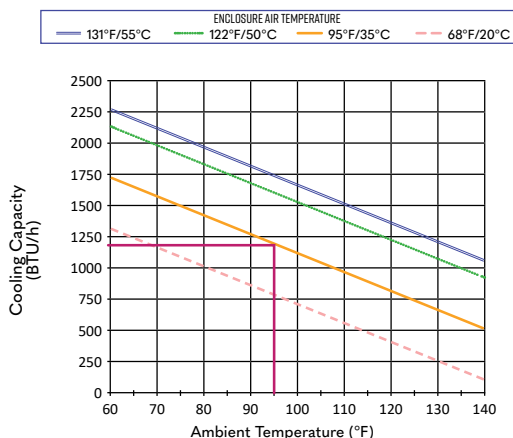
NextGen Enviro-Therm® Series Air Conditioners Specifications							
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	Unit Weight	Drawing Links
<a href="#">SCE-NG1195B120V</a>	\$2,244.00	1195 BTU/H	115 VAC	7.5 A	2.6 A	30.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG1195B230V</a>	\$2,180.00		230 VAC	4A	1.6 A	31.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG1870B120V</a>	\$2,787.00	1870 BTU/H	115 VAC	13A	4.8 A	35.3 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG1870B230V</a>	\$2,418.00		230 VAC	6A	2.5 A		<a href="#">PDF</a>

## Performance Graphs

### SCE-NG1195 Units

#### PERFORMANCE CURVE

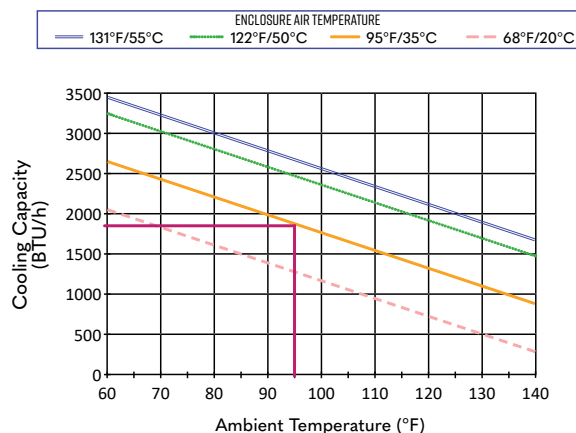
SCE-NG1195B120V, SCE-NG1195B230V



### SCE-NG1870 Units

#### PERFORMANCE CURVE

SCE-NG1870B120V, SCE-NG1870B230V



# NextGen Enviro-Therm® Series Air Conditioners



Your Enclosure Source®

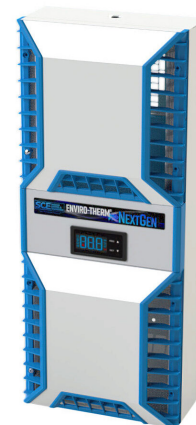
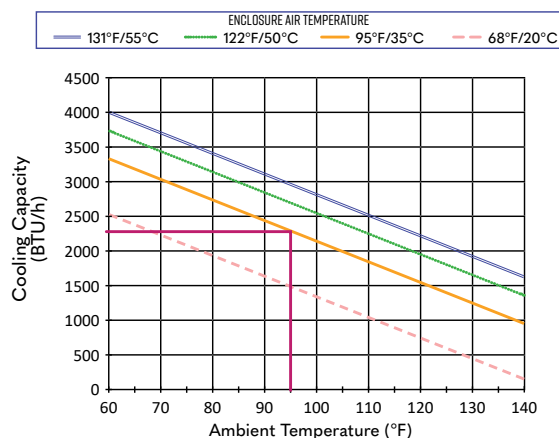
NextGen Enviro-Therm® Series Air Conditioners Specifications							
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	Unit Weight	Drawing Links
<a href="#">SCE-NG2320B120V</a>	\$2,787.00	2320 BTU/H	115 VAC	13A	6.0 A	46.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG2320B230V</a>	\$2,418.00		230 VAC	6A	2.7 A	31.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG2320B460V</a>	\$2,823.00		460 VAC	3A	1.5 A	40.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG2970B120V</a>	\$3,086.00	2970 BTU/H	115 VAC	28A	6.8 A	66.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG2970B230V</a>	\$2,745.00		230 VAC	6A	3.0 A	56.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG2970B460V</a>	\$3,253.00		460 VAC	4A	1.4 A	66.0 lbs	<a href="#">PDF</a>

## Performance Graphs

### SCE-NG2320 Units

#### PERFORMANCE CURVE

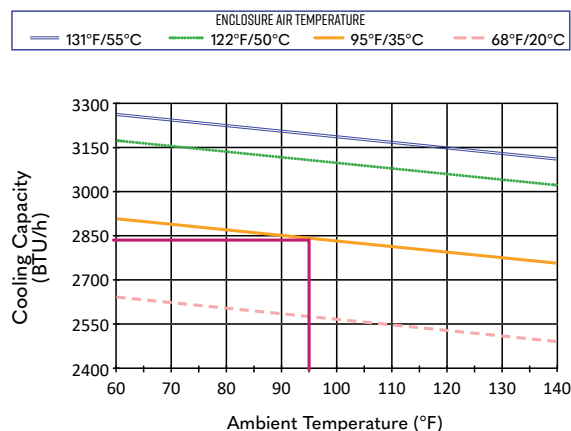
SCE-NG2320B120V, SCE-NG2320B230V, SCE-NG2320B460V



### SCE-NG2970 Units

#### PERFORMANCE CURVE

SCE-NG2970B120V, SCE-NG2970B230V, SCE-NG2970B460V



# NextGen Enviro-Therm® Series Air Conditioners



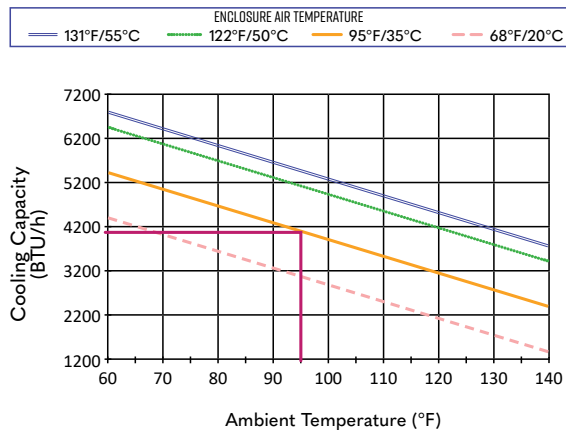
NextGen Enviro-Therm® Series Air Conditioners Specifications							
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	Unit Weight	Drawing Links
<a href="#">SCE-NG2970B460V</a>	\$3,660.00	4095 BTU/H	115 VAC	30A	9.5 A	77.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG4095B230V</a>	\$3,224.00		230 VAC	15A	5.0 A	66.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG4095B460V3</a>	\$3,660.00		460 VAC	8.2 A	2.0 A	77.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG5290B120V</a>	\$4,193.00	5290 BTU/H	115 VAC	32A	9.4 A	96.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG5290B230V</a>	\$3,784.00		230 VAC	16A	4.7 A	85.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG5290B460V3</a>	\$4,193.00		460 VAC	8.2 A	2.0 A	88.0 lbs	<a href="#">PDF</a>

## Performance Graphs

### SCE-NG4095 Units

#### PERFORMANCE CURVE

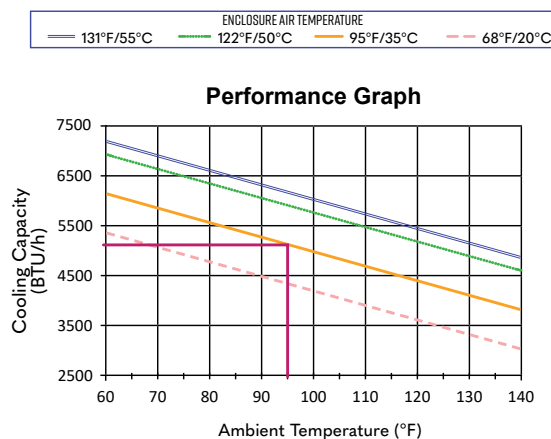
SCE-NG4095B120V, SCE-NG4095B230V, SCE-NG4095B460V3



### SCE-NG5290 Units

#### PERFORMANCE CURVE

SCE-NG5290B120V, SCE-NG5290B230V, SCE-NG5290B460V3





# NextGen Enviro-Therm® Series Air Conditioners



Your Enclosure Source®

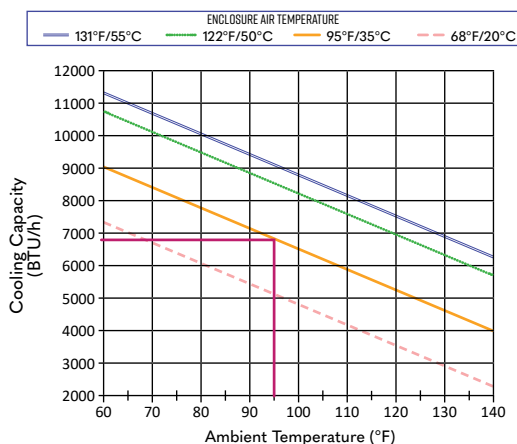
NextGen Enviro-Therm® Series Air Conditioners Specifications							
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	Unit Weight	Drawing Links
<a href="#">SCE-NG5290B460V3</a>	\$4,678.00	6800 BTU/H	115 VAC	32A	14.8 A	106.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG6800B230V</a>	\$4,256.00		230 VAC	16A	7.4 A	102.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG6800B460V3</a>	\$4,678.00		460 VAC	8A	2.9 A	107.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG8500B120V</a>	\$5,386.00	8500 BTU/H	115 VAC	22.5 A	19.3 A	99.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG8500B230V</a>	\$4,910.00		230 VAC	11A	7.9 A	104.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG8500B460V3</a>	\$5,386.00		460 VAC	20A	3.1 A	99.0 lbs	<a href="#">PDF</a>

## Performance Graphs

### SCE-NG6800 Units

#### PERFORMANCE CURVE

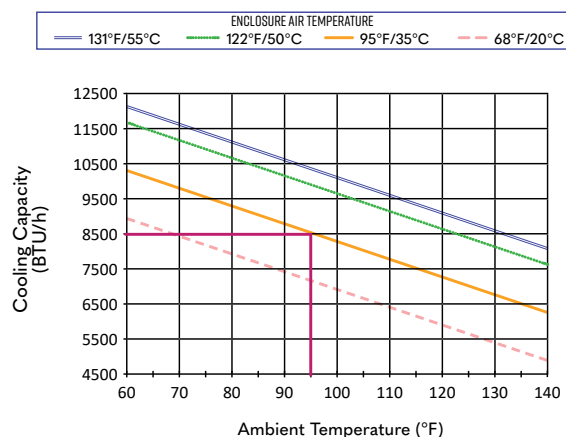
SCE-NG6800B120V, SCE-NG6800B230V, SCE-NG6800B460V3



### SCE-NG8500 Units

#### PERFORMANCE CURVE

SCE-NG8500B120V, SCE-NG8500B230V, SCE-NG8500B460V3





# NextGen Enviro-Therm® Series Air Conditioners



Your Enclosure Source®

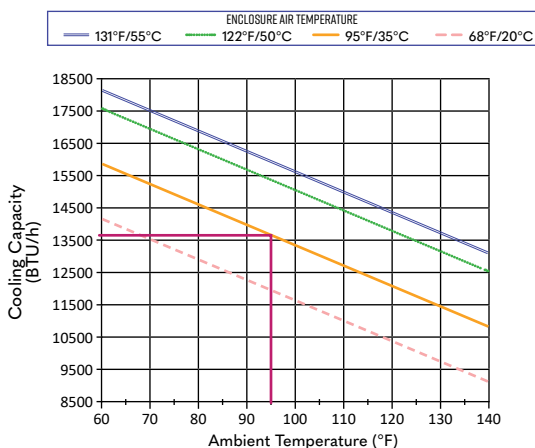
NextGen Enviro-Therm® Series Air Conditioners Specifications							
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	Unit Weight	Drawing Links
<a href="#">SCE-NG14300B230V</a>	\$6,284.00	14300 BTU/H	230 VAC	50A	14.8 A	136.0 lbs	<a href="#">PDF</a>
<a href="#">SCE-NG14300B460V3</a>	\$6,870.00		460 VAC	15A	4.5 A	141.0 lbs	<a href="#">PDF</a>

## Performance Graphs

### SCE-NG14300 Units

#### PERFORMANCE CURVE

SCE-NG14300B230V, SCE-NG14300B460V3



# SlimLine Series Air Conditioners



## Applications

SlimLine air conditioners are designed with an internal closed loop system to provide protection from dust, oil and water. Rugged, energy efficient, and reliable cooling system.

## Construction

- Heavy gauge carbon steel.
- For use with NEMA 12 enclosures.
- Internal components are corrosion resistant.
- Captive screw fastened filter cover.
- Easy mounting flange hangers for installation included.
- High performance ball bearing fans.
- Cage clamp terminal connector.
- Oil and water-resistant gaskets installed.
- Units are painted RAL7035 Light Gray
- All 460 VAC units have an SCCR of 5kA

## Features

- Coils are designed as filterless units, fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable 8-layer aluminum mesh filters included.
- Compressor heater.
- Enclosure heater for low ambient temperatures.
- High temp alarm.
- Door-activated switch wiring provisions.
- Environmentally friendly and chlorine-free R-134a refrigerant.

## Listings

- cULus Listed Type 12 File: E498756.
- cULus Recognized File SA32278
- IP54



SlimLine Series Air Conditioners							
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	Unit Weight	Drawing Link
<a href="#">42661001</a>	\$1,856.00	1130 BTU/H	115 VAC	7.1 A	3.6 A	29.0 lbs	<a href="#">PDF</a>
<a href="#">42691001</a>	\$1,975.00	1770 BTU/H		14.6 A	4.4 A	35.0 lbs	<a href="#">PDF</a>
<a href="#">42711001</a>	\$3,283.00	3020 BTU/H		37A	7.2 A	73.0 lbs	<a href="#">PDF</a>
<a href="#">42712001</a>	\$3,283.00		460 VAC	8.2 A	1.4 A	84.0 lbs	<a href="#">PDF</a>
<a href="#">42721001</a>	\$3,836.00	4100 BTU/H	115 VAC	37A	8.0 A	88.0 lbs	<a href="#">PDF</a>
<a href="#">42722001</a>	\$3,836.00	4090 BTU/H	460 VAC	8.2 A	1.5 A	90.0 lbs	<a href="#">PDF</a>

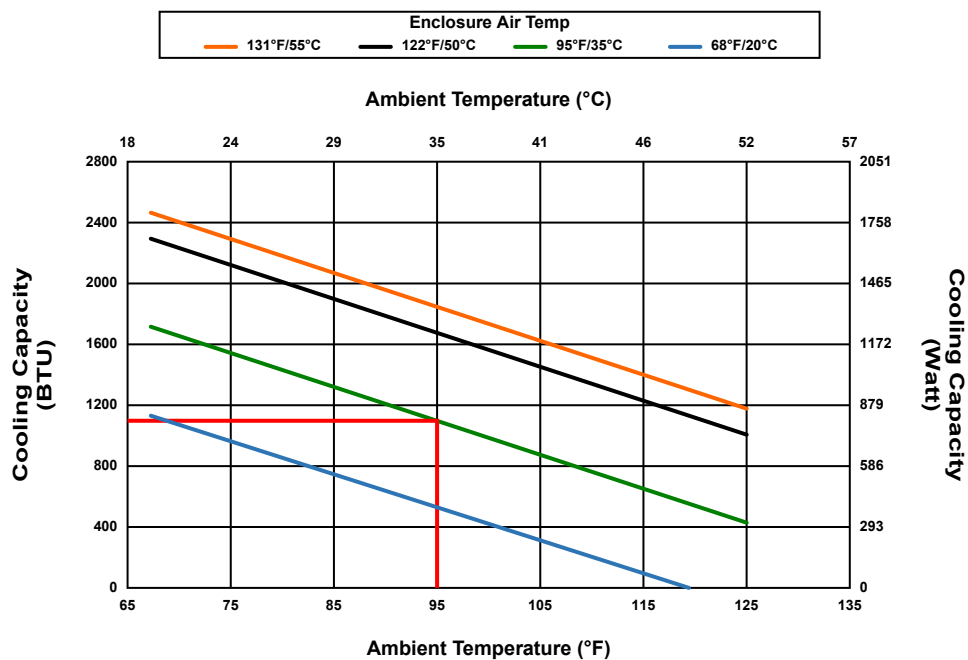
# SlimLine Series Air Conditioners



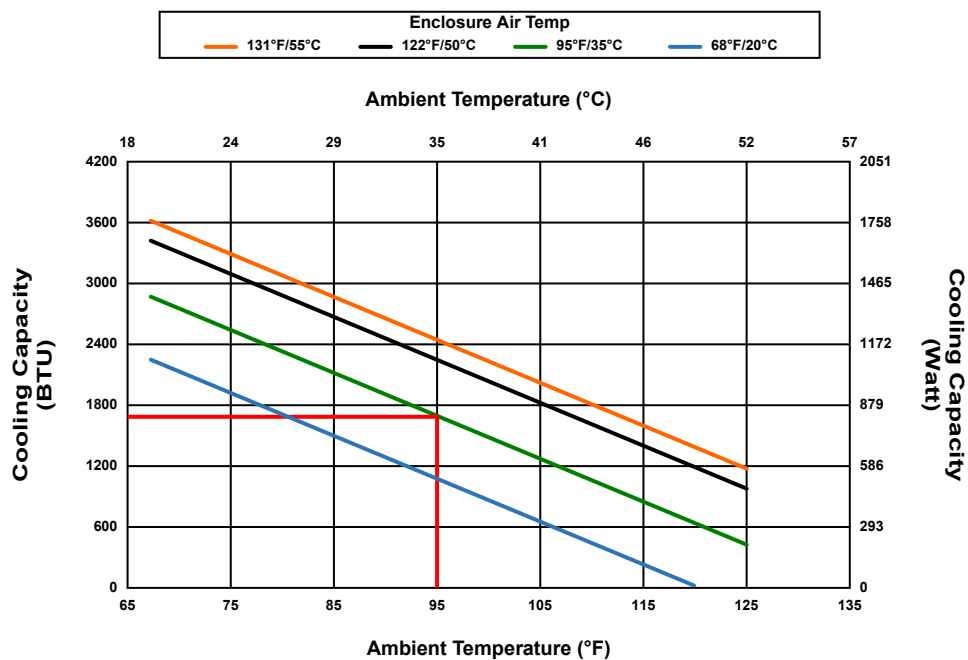
## Performance Graphs



SlimLine 4266 Units



SlimLine 4269 Units



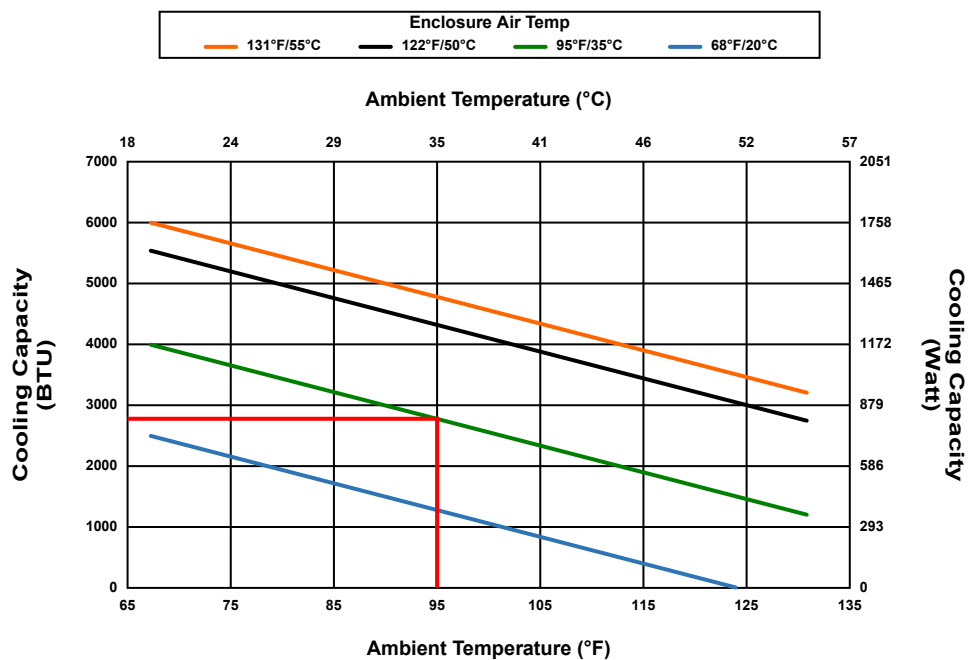
# SlimLine Series Air Conditioners



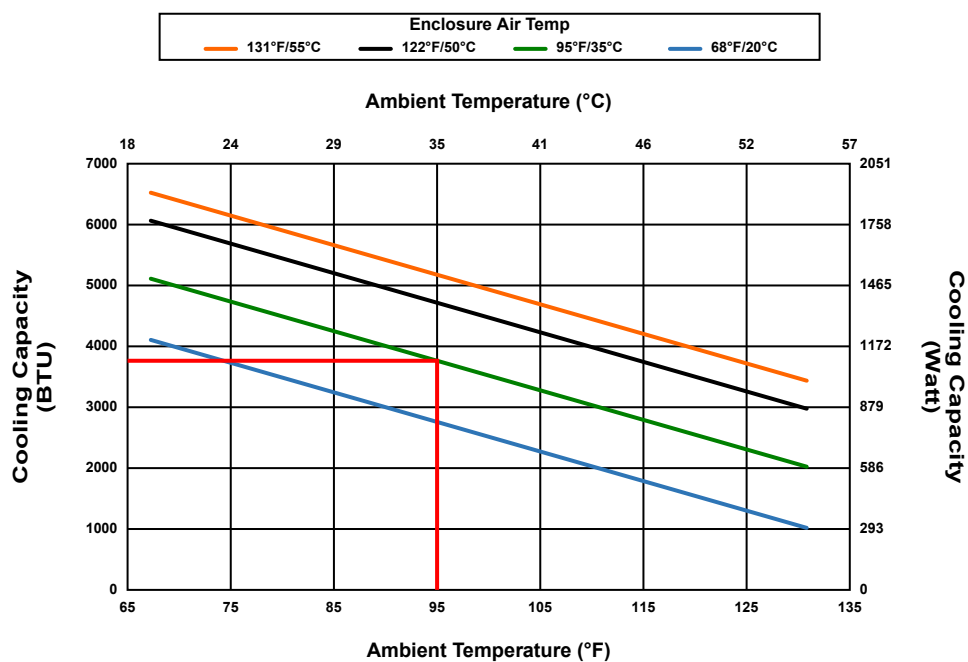
## Performance Graphs



SlimLine 4271 Units



SlimLine 4272 Units



# SlimLine Vario Series Air Conditioner



## Applications

The SlimLine Vario compressor can be adjusted to the required cooling capacity with variable speed via a controller, only consuming the amount of electricity that is actually required to cool the current power losses.

By continuously adapting the cooling capacity, a constant enclosure temperature can be achieved. Meaning the electronic components and the cooler are significantly less stressed. In addition, the formation of condensate inside the enclosure is minimized.

All of this leads to higher operational reliability, longer service life and energy savings.

## Construction

- Carbon steel housing.
- Closed loop cooling system.
- Hermetically sealed rotary compressor.
- Internal components are corrosion resistant.
- Built in Modbus communication via RS485 serial for unit monitoring and variable speed control.
- Active condensate system.
- Easy handling removable lifting strap.
- Mounting flange hangers for easy installation, included.
- Digital touchpad programmable controller, viewable from outside the enclosure.
- High performance ball bearing fans.
- SCCR of 5kA

## Features

- Coils are designed as filterless units, with fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable aluminum mesh filters included.
- Compressor heater.
- Enclosure heater for low ambient temperatures.
- High temp alarm.
- Door-activated switch wiring provisions.
- Environmentally friendly and chlorine-free R-134a refrigerant.

## Listings

- cULus Listed Type 3, 3R, and 12 File: E498756.
- cULus Recognized File SA32278
- IP54



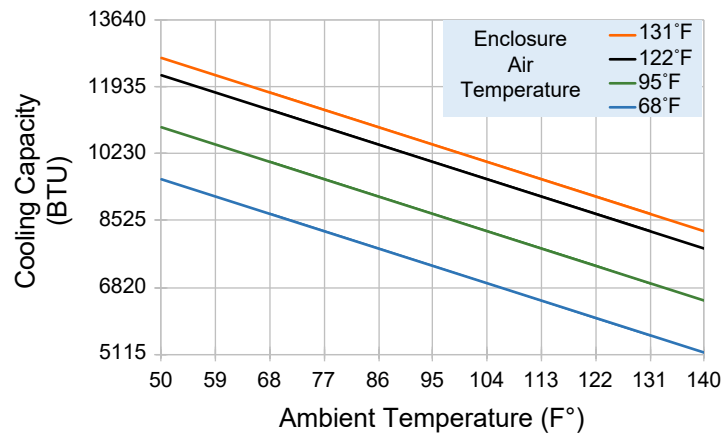
SlimLine Vario Air Conditioner							
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	Unit Weight	Drawing Link
<a href="#">862504001</a>	\$5,946.00	8700 BTU/H	115/230 VAC	8A	12.6A/6.3 A	99.0 lbs	<a href="#">PDF</a>

# SlimLine Vario Series Air Conditioners

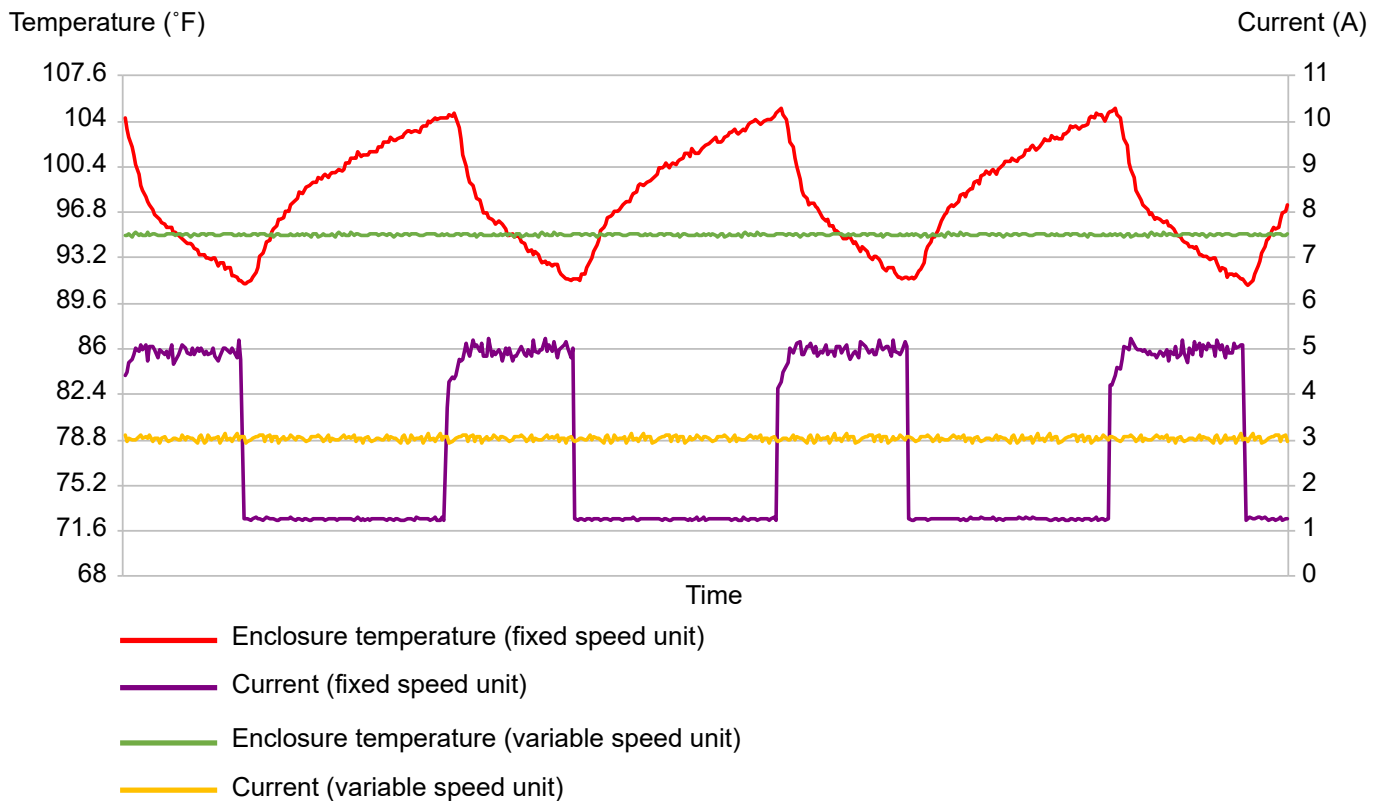


## Performance Graphs

SlimLine Vario Units



Variable Speed vs. Fixed Speed Current Usage



# Enclosure Accessories – Miscellaneous

Shipping Schedule				
Same day	1 - 5 days	1 - 7 days	1 - 15 days	1 - 20 days
Color indicates shipping lead time in business days.				



## Locking Protective Cover

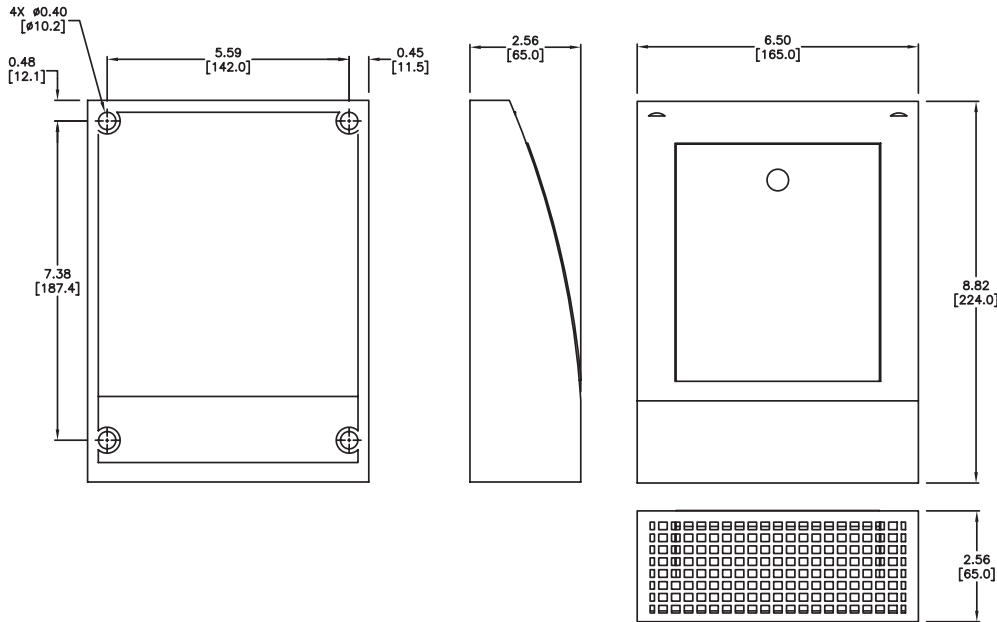
**Features**

- Packaged multi-purpose protective cover
- Locking door
- Weather and UV-resistant (UL 94-HB)
- IP 20 Protection Class
- Includes mounting screws



Locking Protective Cover	Description	Price
<b>086110-00</b>	Stego multi-purpose protective cover with locking door, weather and UV-resistant (UL 94-HB), IP20 protection class. Includes mounting screws and keys.	\$49.00

## Dimensions





# Ecoline Enclosure LED Lights Magnet, Clip, or Screw Mounted



Magnet Mount



Screw Mount



Clip Mount

## Applications

- Suitable for all types of panels and enclosures, especially where space is at a premium
- Suitable for daisy-chaining
- Allows for up to 10 lights to be connected to each other

## Features

- Energy saving LED technology
- Available with magnet, clip, or screw mounts allowing them to be easily positioned in any enclosure
- Magnet mount has powerful non-slip rubberized magnets and work on ferrous steel only
- Clip mount has specifically designed clip holders for clip mount of the LED 025. The light is snapped into the clip holders and can be rotated 180°
- Wide voltage range
- Dual cage clamp for quick wiring



## Listings

- UL File No. E234324
- CE, VDE, EAC

## Ecoline Enclosure LED Lights

Magnet Mount	Price	Screw Mount	Price	Clip Mount	Price	Operating Voltage	Switch Type
<a href="#"><u>025403-10</u></a>	\$71.00	<a href="#"><u>025403-11</u></a>	\$60.00	<a href="#"><u>025403-13</u></a>	\$60.00	AC 100 - 240V, 50/60 Hz (min. 90V, max. 265V) DC 90 - 110V (min. 80V, max. 125V)	On/Off
<a href="#"><u>025413-10</u></a>	\$138.00	<a href="#"><u>025413-11</u></a>	\$126.00	<a href="#"><u>025413-13</u></a>	\$126.00	AC 100 - 240V, 50/60 Hz (min. 90V, max. 265V) DC 90 - 110V (min. 80V, max. 125V)	PIR motion sensor
<a href="#"><u>025423-10</u></a>	\$70.00	<a href="#"><u>025423-11</u></a>	\$58.00	<a href="#"><u>025423-13</u></a>	\$58.00	AC 100 - 240V, 50/60 Hz (min. 90V, max. 265V) DC 90 - 110V (min. 80V, max. 125V)	—
<a href="#"><u>025401-10</u></a>	\$94.00	<a href="#"><u>025401-11</u></a>	\$82.00	<a href="#"><u>025401-13</u></a>	\$82.00	DC 24-48 (min. 20V, max. 60V)	On/Off switch
<a href="#"><u>025411-10</u></a>	\$173.00	<a href="#"><u>025411-11</u></a>	\$161.00	<a href="#"><u>025411-13</u></a>	\$161.00	DC 24-48 (min. 20V, max. 60V)	PIR motion sensor
<a href="#"><u>025421-10</u></a>	\$92.00	<a href="#"><u>025421-11</u></a>	\$81.00	<a href="#"><u>025421-13</u></a>	\$81.00	DC 24-48 (min. 20V, max. 60V)	—

## Ecoline Enclosure LED Lights Specifications

<b>Power Consumption</b>	Max. 5W (~75 W incandescent bulb)
<b>Luminosity</b>	400 Lm at 120° (1,200 Lm at 360° or equivalent 95 W light bulb)
<b>Lamp Type</b>	LED, 120° angle of radiation light color – daylight, color temperature – 6,000 to 7,000 K
<b>Service Life</b>	60,000 hrs. at 68°F [20°C]
<b>Connection</b>	2-pole dual cage clamp for 14 AWG [2.5mm] solid wire and 16 AWG [1.5 mm2] stranded wire wire end ferrule
<b>Housing</b>	plastic, transparent
<b>Mounting</b>	Magnet mount Screw mount (M5 screws not included) Clip mount (M6 screws not included)
<b>Operating / Storage Temperature</b>	-22 to 140°F [-30 to 60°C] / -40 to 185°F [-40 to 85°C]
<b>Operating / Storage Humidity</b>	max. 90% RH (non-condensing)
<b>Protection Class</b>	II (double insulated)
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, UL Recognized File No.: E234324, VDE, EAC, RoHS 2 compliant
<b>Weight</b>	approx. 7 oz. [200 g]

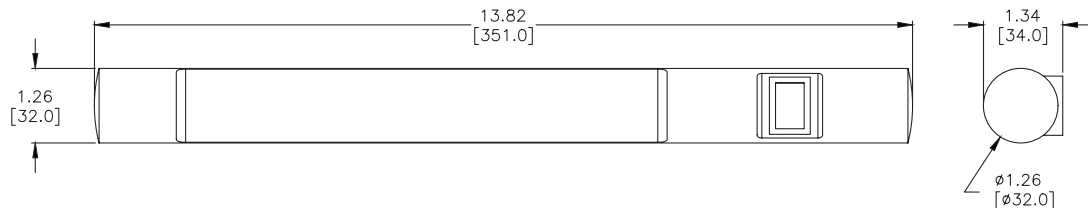


Connection End

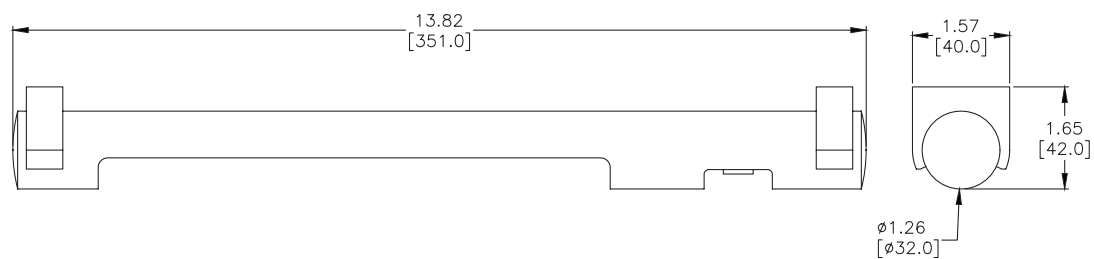
# Ecoline Enclosure LED Lights Magnet, Clip, or Screw Mounted



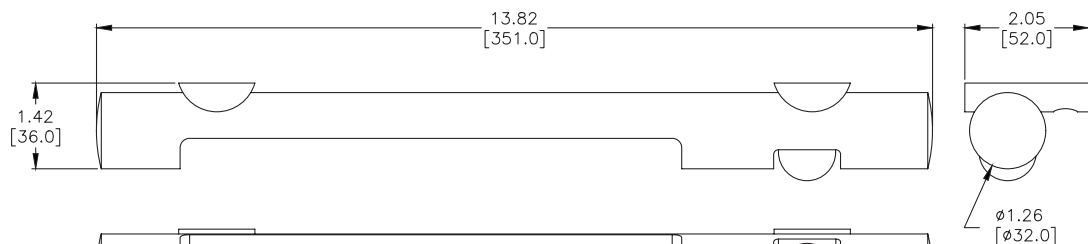
## Dimensions



**Magnet Mount**



**Clip Mount**



**Screw Mount**

# Enclosure LED Lights

## Magnet or Screw Mounted



Magnet mount

### Applications

- Suitable for all types of panels and enclosures, especially where space is at a premium
- Suitable for daisy-chaining
- Allows for up to 10 lights to be connected to each other

### Features

- Energy saving LED technology
- Available with magnet or screw mounts allowing them to be easily positioned in any enclosure
- Magnet mount has powerful non-slip rubberized magnets and work on ferrous steel only
- Wide voltage range



### Listings

- UL File No. E234324
- CE, VDE, EAC



Screw mount

### Enclosure LED Lights Specifications

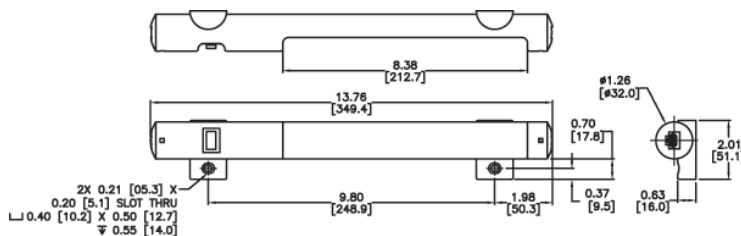
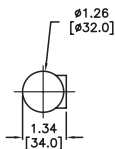
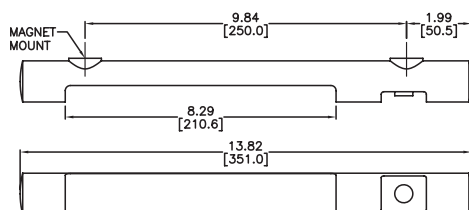
<b>Power Consumption</b>	Max. 5W (~75 W incandescent bulb)
<b>Luminosity</b>	400 Lm at 120° (1,200 Lm at 360° or equivalent 95 W light bulb)
<b>Lamp Type</b>	LED, 120° angle of radiation light color – daylight, color temperature – 6,000 to 7,000 K
<b>Service Life</b>	60,000 hrs. at 68°F [20°C]
<b>Connection</b>	2-pole plug with snap lock (order separately)
<b>Housing</b>	plastic, transparent
<b>Mounting</b>	Magnet or M5 screws (not included), 9.8" (250 mm) centers
<b>Operating / Storage Temperature</b>	-22 to 140°F [-30 to 60°C] / -40 to 185°F [-40 to 85°C]
<b>Operating / Storage Humidity</b>	max. 90% RH (non-condensing)
<b>Protection Class</b>	II (double insulated)
<b>Protection Type</b>	IP20
<b>Approvals</b>	CE, UL Recognized File No.: E234324, VDE, EAC, RoHS 2 compliant

### Enclosure LED Lights

Magnet Mount	Price	Screw Mount	Price	Operating Voltage	Switch Type
<a href="#">025400-00</a>	\$107.00	<a href="#">025400-01</a>	\$93.00	100-240 VAC, 50/60 Hz (min. 90 VAC, max. 265 V)	On/Off Switch <sup>2</sup>
<a href="#">025401-00</a>	\$162.00	<a href="#">025401-01</a>	\$149.00	24-48 VDC (min. 20 VDC, max. 60 VDC)	
<a href="#">025410-00</a>	\$181.00	<a href="#">025410-01</a>	\$168.00	100-240 VAC, 50/60 Hz (min. 90 VAC, max. 265 V)	PIR Motion Sensor <sup>1,3</sup>
<a href="#">025411-00</a>	\$248.00	<a href="#">025411-01</a>	\$235.00	24-48 VDC (min. 20 VDC, max. 60 VDC)	

Notes: <sup>1</sup>Passive Infrared (PIR) motion sensor is factory preset to turn the light OFF five minutes after all action ceases.  
<sup>2</sup>Weight: 0.30 lb [135 g]  
<sup>3</sup>Weight: 0.31 lb [140 g]

### Dimensions



# Enclosure Accessories – LED Light Accessories



## Power cable with input connector and wire leads



Part Number	Price	Description	Length	Voltage	Color
<b>244357</b>	\$28.00	Connection cable 2 x 15 AWG with input connector	6.5 ft (2.0 m)	AC	Connectors: white; Cable: white
<b>244361</b>	\$28.00	Connection cable 2 x 15 AWG with input connector		DC	Connectors: blue; Cable: white

## Extension cable with 2 connectors for daisy chain (input and output) connection



Part Number	Price	Description	Length	Voltage	Color
<b>244359</b>	\$33.50	Extension cable 2 x 15 AWG with 2 connectors	3.2 ft (1.0 m)	AC	Connectors: white; Cable: white
<b>244363</b>	\$33.50	Extension cable 2 x 15 AWG with 2 connectors		DC	Connectors: blue; Cable: white

## Power Input and Output Connectors

(Field Wireable)



Part Number	Price	Description	Voltage	Color
<b>264057</b>	\$9.00	Input connector	AC	White
<b>264058</b>	\$8.50	Output connector		
<b>264059</b>	\$9.00	Input connector	DC	Blue
<b>264060</b>	\$8.50	Output connector		

# Varioline Enclosure LED Lights



## Applications

The Varioline is a powerful and compact LED lamp capable of fully illuminating even very large enclosures. The glare-free, 360° rotatable LED tube uses mid-power LEDs with a service life of 60,000 hours. The emitted daylight color of 6,500K provides safety for the user by a natural and non-fading color reproduction.

## Features

- High luminous flux
- Integrated power unit
- Durable and maintenance-free LED technology
- Available in 15.75in [400 mm] and 23.63in [600 mm] lengths
- Up to eight units can be daisy-chained
- On/off switch, motion sensor or unswitched
- Magnet or screw mounting for easy positioning
- Uses Varioline cable and connectors

## Listings

- UL Recognized File E234324



LED 021 Movement sensor and  
screw mount 021000-00



LED 022 On/off switch and  
magnet mount 022000-30

Varioline Enclosure LED Lights Specifications		
Length	Size 1	Size 2
	15.75in [400 mm]	26.63in [600mm]
Power Consumption	11W Max.	16W Max.
Operating Voltage	AC 100 - 240V, 50/60 Hz (min. AC 90V, max. AC 265V)	
Luminosity	1,080 Lm	1,730 Lm
Lamp Type	LED	
Angle of Radiation	120°	
Light Color	Daylight	
Color Temperature	6,500 K	
Service Life	60,000 hrs. at 68°F [20°C]	
Connection	2-pole connector with snap lock; AC: max. 2.5A / AC 240V, color: white	
Housing	plastic, translucent	
Mounting Hardware (screw mount only)	M5 screws, 2 lb·in max. torque	
Operating Temperature	-22 to 104°F [-30 to 40°C]	
Storage Temperature	-40 to 185°F [-40 to 85°C]	
Operating / Storage Humidity	max. 90% RH (non-condensing)	
Protection Class	II (double insulated)	
Protection Type	IP20	
Approvals	UL Recognized File E234324, VDE, CE	
Weight	Approx. 7.1 oz [0.2 kg]	Approx. 10.6 oz [0.3 kg]

# Varioline Enclosure LED Lights

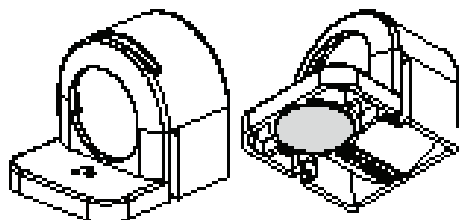


Varioline Enclosure LED Lights						
Size 1 – 15.75in [400 mm] length						
Magnet Mount	Price	Drawing Link	Screw Mount	Price	Drawing Link	Switch Type
<a href="#">021000-30</a>	\$141.00	<a href="#">PDF</a>	<a href="#">021100-00</a>	\$133.00	<a href="#">PDF</a>	on/off
<a href="#">021100-30*</a>	\$191.00	<a href="#">PDF</a>	<a href="#">021100-00</a>	\$184.00	<a href="#">PDF</a>	PIR motion sensor
<a href="#">021200-30</a>	\$137.00	<a href="#">PDF</a>	<a href="#">021200-00</a>	\$129.00	<a href="#">PDF</a>	no

\*Approximately 5 minute fixed switch-on duration.

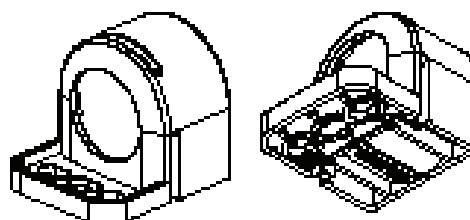
Varioline Enclosure LED Lights						
Size 2 – 23.63in [600 mm] length						
Magnet Mount	Price	Drawing Link	Screw Mount	Price	Drawing Link	Switch Type
<a href="#">022000-30</a>	\$157.00	<a href="#">PDF</a>	<a href="#">022000-00</a>	\$149.00	<a href="#">PDF</a>	on/off
<a href="#">022100-30*</a>	\$207.00	<a href="#">PDF</a>	<a href="#">022100-00</a>	\$200.00	<a href="#">PDF</a>	PIR motion sensor
<a href="#">022200-30</a>	\$153.00	<a href="#">PDF</a>	<a href="#">022200-00</a>	\$145.00	<a href="#">PDF</a>	no

\*Approximately 5 minute fixed switch-on duration.



View of Magnet Mount

Close up view



View of Screw Mount

# Accessories – Varioline Enclosure LED Lights



## Power cable with input connector and wire leads



Part Number	Price	Description	Length	Voltage	Color
<a href="#">244357</a>	\$28.00	Connection cable 2 x 16 AWG with input connector	6.5ft (2.0 m)	AC	Connectors: white; Cable: white

## Power Input and Output Connectors

(Field Wireable)



Part Number	Price	Description	Voltage	Color
<a href="#">264057</a>	\$9.00	Input Connector	AC	White
<a href="#">264058</a>	\$8.50	Output Connector		

## Extension Cable with 2 Connectors (Input and Output) for Daisy Chain Connection



Part Number	Price	Description	Length	Voltage	Color
<a href="#">244359</a>	\$33.50	Extension cable 2 x 15 AWG with 2 connectors	3.2 ft (1.0 m)	AC	Connectors: white; Cable: white



# Accessories – Varioline Enclosure LED Lights with Socket



## Applications

The Varioline is a powerful and compact LED light capable of illuminating even very large enclosures in their full depth and height. Its integrated socket allows for the power connection of laptops and diagnostic devices. The glare-free, 120° rotatable light tube uses mid-power LEDs with a service life of 60,000 hours. The emitted daylight color of 6,500K provides safety for the user by a natural and non-fading color reproduction.

## Features

- High luminous flux
- Integrated socket
- Integrated power unit
- Durable and maintenance-free LED technology
- Up to eight units can be daisy-chained
- On/off switch, motion sensor, connection for external door switch or unswitched
- Magnet or screw mount

## Listings

- UL Recognized File E234324



**LED 121 On/Off Switch and screw mount 121040-00**



**LED 122 Movement Sensor and magnet mount 122040-30**

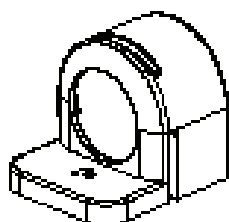
Varioline Enclosure LED Lights with Socket Specifications		
	Size 1	Size 2
<b>Length</b>	19.68in [500mm]	27.56in [700mm]
<b>Power Consumption</b>	11W Max.	16W Max.
<b>Socket Nominal Current</b>	15A	
<b>Operating Voltage</b>	AC 120V , 50/60 Hz (min. AC 110 , max. AC 130V)	
<b>Luminosity</b>	1,080 Lm	1,730 Lm
<b>Lamp Type</b>	LED	
<b>Angle or Rotation</b>	120°	
<b>Light Color</b>	Daylight	
<b>Color Temperature</b>	6,500 K	
<b>Service Life</b>	60,000 hrs. at 68°F [20°C]	
<b>Connection</b>	3-pole connector with snap lock; AC: max. 16A / AC 240V, color: white	
<b>Housing</b>	Plastic, transparent	
<b>Mounting Hardware (screw mount only)</b>	M5 screws, 2 lb-in max.	
<b>Operating Temperature</b>	-22 to 104°F [-30 to 40°C]	
<b>Storage Temperature</b>	-40 to 185°F [-40 to 85°C]	
<b>Operating / Storage Humidity</b>	Max. 90% RH (non-condensing)	
<b>Protection Class</b>	I (earthed)	
<b>Protection Type</b>	IP20	
<b>Approvals</b>	UL Recognized File E234324, VDE, CE	
<b>Weight</b>	Approx. 10.6 oz [0.3kg]	Approx. 14.1oz [0.4kg]

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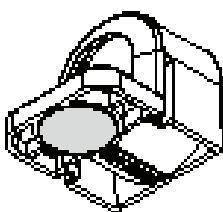


Varioline Enclosure LED Lights with Socket						
Size 1 – 19.68in [500mm]						
Magnet Mount	Price	Drawing Link	Screw Mount	Price	Drawing Link	Switch Type
<a href="#">121040-30</a>	\$178.00	<a href="#">PDF</a>	<a href="#">121040-00</a>	\$167.00	<a href="#">PDF</a>	on/off
<a href="#">121140-30*</a>	\$227.00	<a href="#">PDF</a>	<a href="#">121140-00</a>	\$216.00	<a href="#">PDF</a>	PIR motion sensor
<a href="#">121240-30**</a>	\$183.00	<a href="#">PDF</a>	<a href="#">121240-00</a>	\$172.00	<a href="#">PDF</a>	connection for external
<a href="#">121340-30</a>	\$174.00	<a href="#">PDF</a>	<a href="#">121340-00</a>	\$163.00	<a href="#">PDF</a>	no
*Approximately 5 minute fixed switch-on duration.						
** Requires plug 264090						

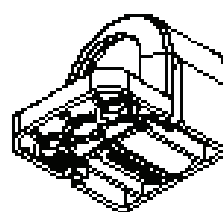
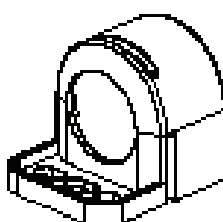
Varioline Enclosure LED Lights with Socket						
Size 2 – 27.56 [700mm]						
Magnet Mount	Price	Drawing Link	Screw Mount	Price	Drawing Link	Switch Type
<a href="#">122040-30</a>	\$194.00	<a href="#">PDF</a>	<a href="#">122040-00</a>	\$183.00	<a href="#">PDF</a>	on/off
<a href="#">122140-30*</a>	\$243.00	<a href="#">PDF</a>	<a href="#">122140-00</a>	\$232.00	<a href="#">PDF</a>	PIR motion sensor
<a href="#">122240-30**</a>	\$199.00	<a href="#">PDF</a>	<a href="#">122240-00</a>	\$188.00	<a href="#">PDF</a>	connection for external
<a href="#">122340-30</a>	\$190.00	<a href="#">PDF</a>	<a href="#">122340-00</a>	\$179.00	<a href="#">PDF</a>	no
*Approximately 5 minute fixed switch-on duration.						
** Requires plug 264090						



View of Magnet Mount



View of Screw Mount



Close up view

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## Power cable with input connector and wire leads



244423

Part Number	Price	Description	Length	Voltage	Color
<a href="#">244423</a>	\$67.00	Connection cable 3 x 16 AWG with input connector	13.1 ft (4.0 m)	AC	Connectors: white; Cable: white

## Varioline Power Input and Output Connectors

(Field Wireable)



264090



264091



264093

Part Number	Price	Description	Voltage	Color
<a href="#"><u>264090</u></a>	\$11.00	External Switch Connector	AC	Gray
<a href="#"><u>264091</u></a>	\$14.00	Input Connector		White
<a href="#"><u>264093</u></a>	\$15.50	Daisy Chain Connector		
*Required for External Connection Switch Varioline lights.				

## Extension Cable with 2 Connectors (Input and Output) for Daisy Chain Connection



244359

Part Number	Price	Description	Length	Voltage	Color
<a href="#">244359</a>	\$33.50	Extension cable 2 x 15 AWG with 2 connectors	3.2 ft (1.0 m)	AC	Connectors: white; Cable: white