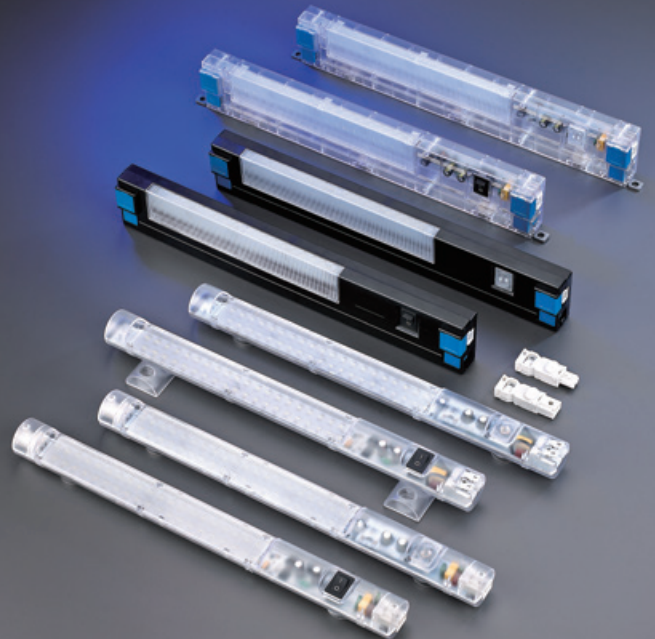


## Climate Control for Regulating & Heating & Ventilating & Lighting & Fan



# Natural<sup>®</sup>

## Climate Control for Regulating & Heating & Ventilating & Lighting & Fan

Wenzhou Natural Automation Equipment Co., Ltd. is specialized in R & D, Manufacturing, Marketing and Sales services for Thermostat, Hygrostat, Heater, Filter Fan, Cabinet LED Lamp, Panel Parts.

Our products can be used in the field of Electrical and Electronics, Telecommunications, Wind Energy, Solar Energy, Rail Transportation and Car Manufacturing, Power Station and Outdoor Factories, Parking Control Systems. We have provided OEM, ODM services for 17 years all over the world.

We have got ISO9001: 2015 certification, our products have got CE, RoHS, Patent, all our products should pass the half-finished 100% testing and finished 100% testing before delivery. For double guarantee, we use point key controlling during producing process, which monitor quality on time. Which can keep the fault rate of our products is controlled within 1/1000.

Wenzhou Natural always adhere to the management philosophy of "People-oriented, Science and Technology enterprises", the broad masses of users to absorb the views and requirements from the users and provide a complete system solutions for "Cabinet Control Environment", praised by the majority of users widely.

Offer High-Class quality products and good service is our target. Build long term business with our customer is our final content. Welcome your cooperation with us in the future.

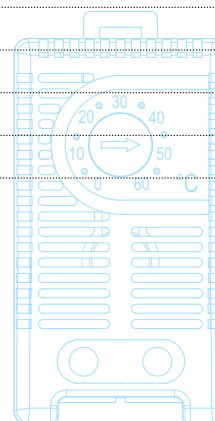
Sincerely welcome worldwide friends to visit our factory and negotiate business, we will be happy to serve you!



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# Regulating

Thermostat, Hygrostat



CE RoHS ISO9001 Patent



NT 43-F / NT 44-F  
NT 43-M / NT 44-M

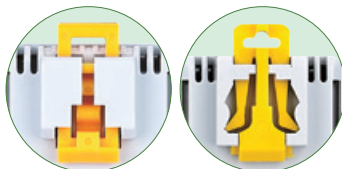


- Large setting range
- Can offer RAL 7035 Gray color or RAL 9011 Black color.
- With Fast Fixing Part on the backside, easy to fix onto DIN Rail and easy to remove from DIN Rail
- With easy adjusting Knob, can adjust temperature by hand
- Small size
- High switching performance

**NT 43-F / NT 43-M: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

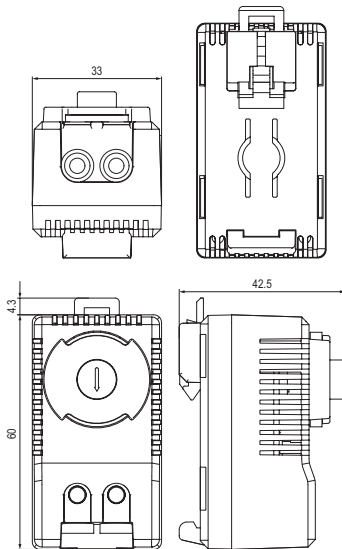
**NT 44-F / NT 44-M: Thermostat (normally open);** contact maker for regulating of filter fans and heat exchangers or for switching signal devises when temperature limit has been exceeded. The contact closes when temperature is rising.

Fast Fixing Part

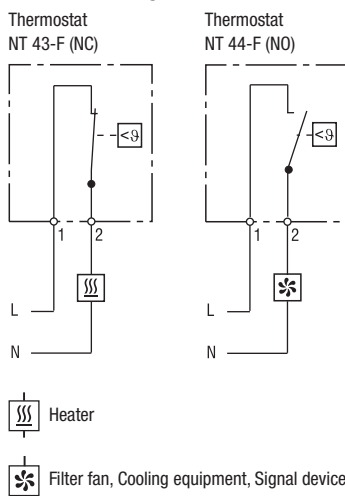


F Type

M Type



### Connection Diagrams



### Technical Data

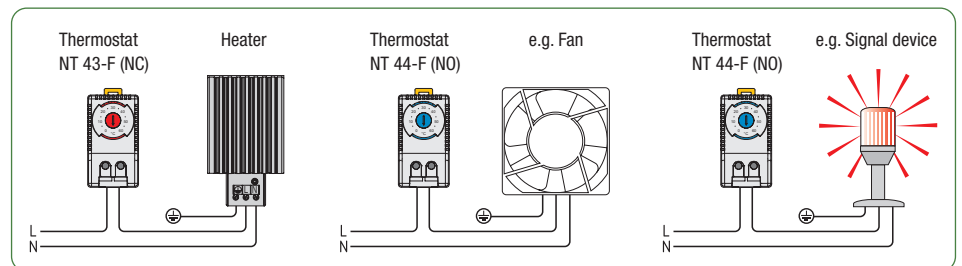
CE RoHS ISO9001 Patent

#### NT 43-F / NT 44-F / NT 43-M / NT 44-M

Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	>100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A; DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.3×33×42.5mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with wires, wire end ferrules must be used.

### Examples of Connection

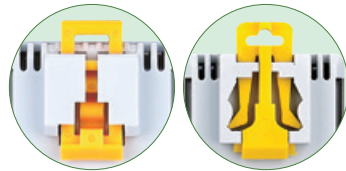


Fast fixing type (F Type)		Manual up down type (M Type)		Setting range
NT 43-F (NC Type)	NT 44-F (NO Type)	NT 43-M (NC Type)	NT 44-M (NO Type)	
43NCF01	44NOF01	43NCM01	44NOM01	0 to +60°C
43NCF02	44NOF02	43NCM02	44NOM02	-10 to +50°C
43NCF03	44NOF03	43NCM03	44NOM03	+20 to +80°C
43NCF04	44NOF04	43NCM04	44NOM04	+32 to +140°F
43NCF05	44NOF05	43NCM05	44NOM05	+14 to +122°F

### NT 43-F-B / NT 44-F-B NT 43-M-B / NT 44-M-B

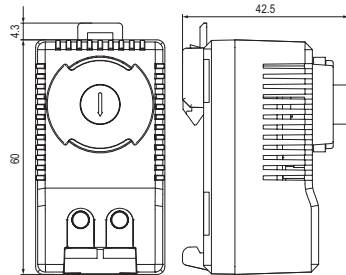
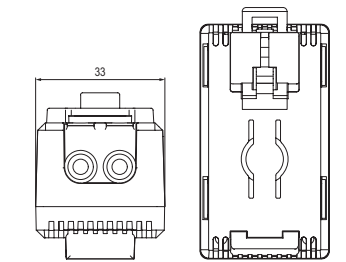


Fast Fixing Part

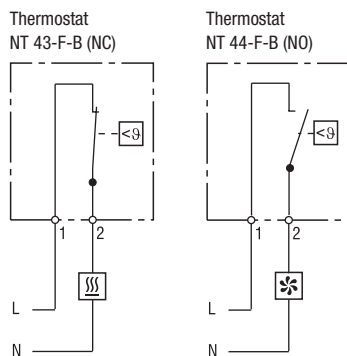


F Type

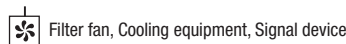
M Type



### Connection Diagrams



Heater



Filter fan, Cooling equipment, Signal device

- Large setting range
- Can offer RAL 7035 Gray color or RAL 9011 Black color.
- With Fast Fixing Part on the backside, easy to fix onto DIN Rail and easy to remove from DIN Rail
- With easy adjusting Knob, can adjust temperature by hand
- High switching performance

**NT 43-F-B / NT 43-M-B: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

**NT 44-F-B / NT 44-M-B: Thermostat (normally open);** contact maker for regulating of filter fans and heat exchangers or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

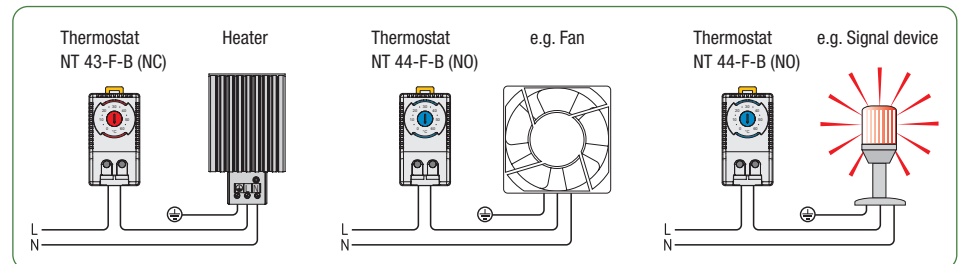
### Technical Data

CE RoHS ISO9001 Patent

NT 43-F-B / NT 44-F-B / NT 43-M-B / NT 44-M-B	
Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	>100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A; DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.3×33×42.5mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with wires, wire end ferrules must be used.

### Examples of Connection



Fast fixing type (F Type)		Manual up down type (M Type)		Setting range
NT 43-F-B (NC Type)	NT 44-F-B (NO Type)	NT 43-M-B (NC Type)	NT 44-M-B (NO Type)	
43NCF01-B	44NOF01-B	43NCM01-B	44NOM01-B	0 to +60°C
43NCF02-B	44NOF02-B	43NCM02-B	44NOM02-B	-10 to +50°C
43NCF03-B	44NOF03-B	43NCM03-B	44NOM03-B	+20 to +80°C
43NCF04-B	44NOF04-B	43NCM04-B	44NOM04-B	+32 to +140°F
43NCF05-B	44NOF05-B	43NCM05-B	44NOM05-B	+14 to +122°F

### NT 45-F / NT 46-F NT 45-M / NT 46-M

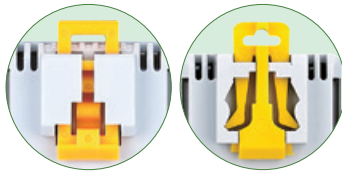


- Large setting range
- With Fast Fixing Part on the backside, easy to fix onto DIN Rail and easy to remove from DIN Rail
- With Big Knob to adjust temperature
- Small size
- High switching performance

**NT 45-F: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

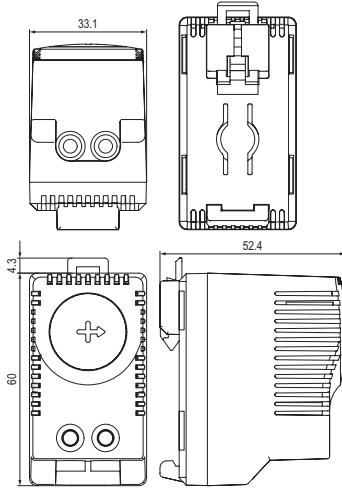
**NT 46-F: Thermostat (normally open);** contact maker for regulating of filter fans and heat exchangers or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

#### Fast Fixing Part

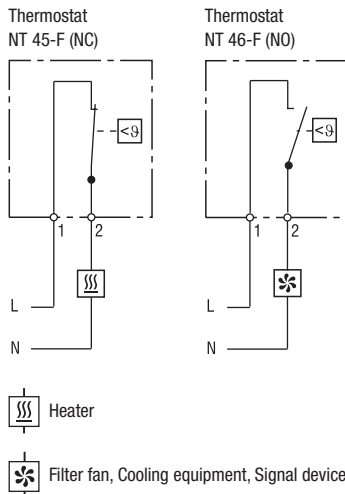


F Type

M Type



#### Connection Diagrams



#### Technical Data

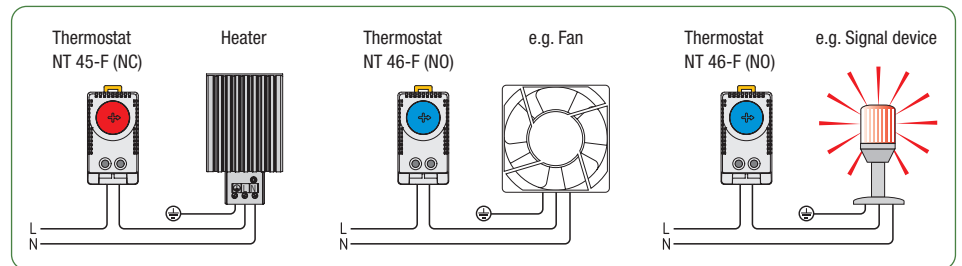
CE RoHS ISO9001 Patent

#### NT 45-F / NT 46-F / NT 45-M / NT 46-M

Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	>100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A; DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.3×33.1×52.4mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with wires, wire end ferrules must be used.

#### Examples of Connection



Fast fixing type (F Type)		Manual up down type (M Type)		Setting range
NT 45-F (NC Type)	NT 46-F (NO Type)	NT 45-M (NC Type)	NT 46-M (NO Type)	
45NCF01	46NOF01	45NCM01	46NOM01	0 to +60°C
45NCF02	46NOF02	45NCM02	46NOM02	-10 to +50°C
45NCF03	46NOF03	45NCM03	46NOM03	+20 to +80°C
45NCF04	46NOF04	45NCM04	46NOM04	+32 to +140°F
45NCF05	46NOF05	45NCM05	46NOM05	+14 to +122°F



### NT 47-F / NT 48-F NT 47-M / NT 48-M

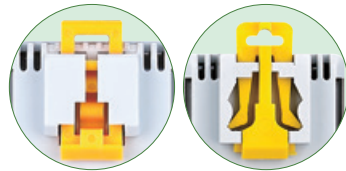


- Large setting range
- With Fast Fixing Part on the backside, easy to fix onto DIN Rail and easy to remove from DIN Rail
- Small size
- High switching performance

**NT 47-F / NT 47-M: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

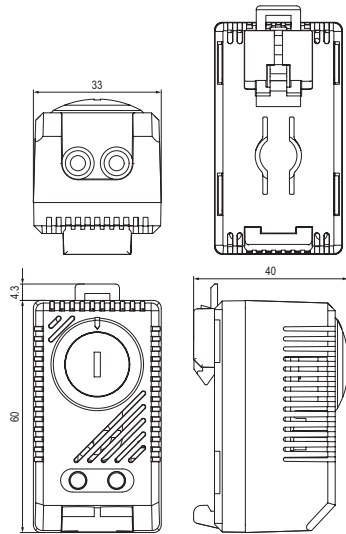
**NT 48-F / NT 48-M: Thermostat (normally open);** contact maker for regulating of filter fans and heat exchangers or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

#### Fast Fixing Part



F Type

M Type



#### Technical Data

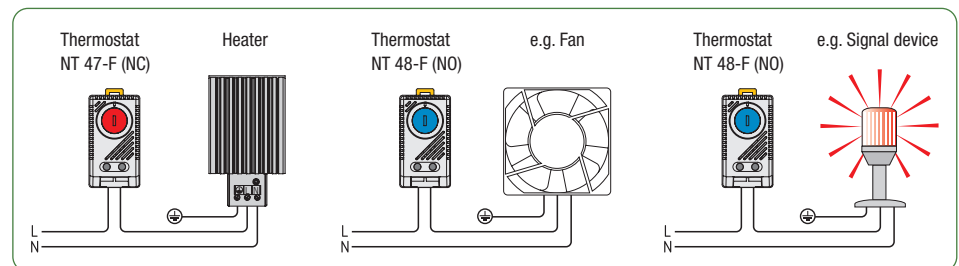
CE RoHS ISO9001 Patent

#### NT 47-F / NT 48-F / NT 47-M / NT 48-M

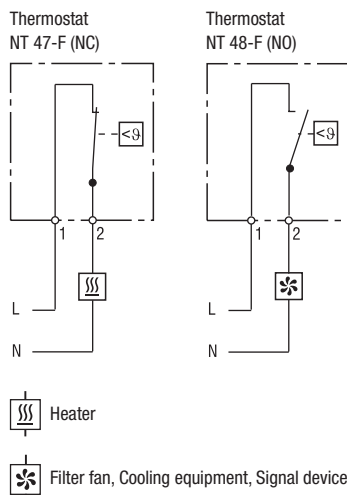
Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	>100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.3×33×40mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with wires, wire end ferrules must be used.

#### Examples of Connection



#### Connection Diagrams



Fast fixing type (F Type)		Manual up down type (M Type)		Setting range
NT 47-F (NC Type)	NT 48-F (NO Type)	NT 47-M (NC Type)	NT 48-M (NO Type)	
47NCF01	48NOF01	47NCM01	48NOM01	0 to +60°C
47NCF02	48NOF02	47NCM02	48NOM02	-10 to +50°C
47NCF03	48NOF03	47NCM03	48NOM03	+20 to +80°C
47NCF04	48NOF04	47NCM04	48NOM04	+32 to +140°F
47NCF05	48NOF05	47NCM05	48NOM05	+14 to +122°F

### NTL 35-F / NTL 36-F NTL 35-M / NTL 36-M



- Large setting range
- Small size
- Simple to mount
- High switching performance

**NTL 35-F / NTL 35-M: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

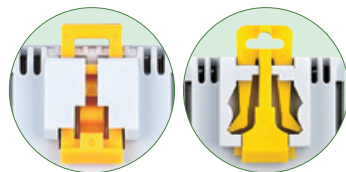
**NTL 36-F / NTL 36-M: Thermostat (normally open);** contact maker for regulating of filter fans and heat exchangers or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

CE RoHS ISO9001 Patent

#### Technical Data

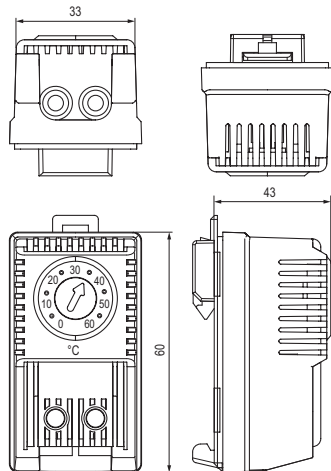
NTL 35-F / NTL 36-F / NTL 35-M / NTL 36-M	
Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	>100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	60×33×43mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

#### Fast Fixing Part

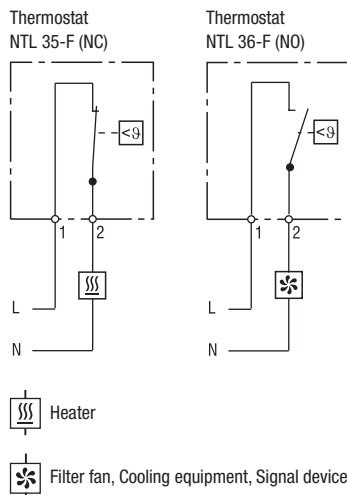


F Type

M Type



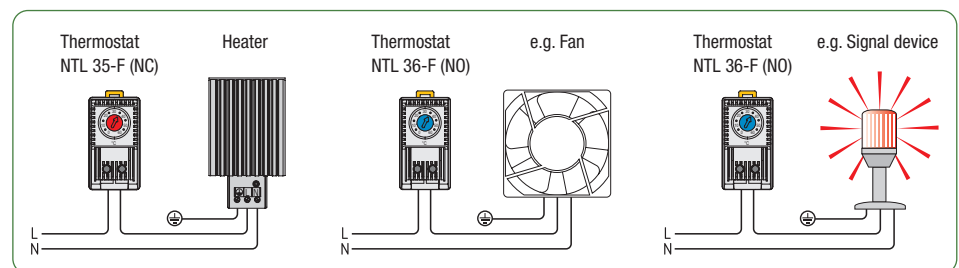
#### Connection Diagrams



<sup>1</sup> When connecting with wires, wire end ferrules must be used.

**Important note:** The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

#### Examples of Connection



Fast fixing type (F Type)		Manual up down type (M Type)		Setting range
NTL 35-F (NC Type)	NTL 36-F (NO Type)	NTL 35-M (NC Type)	NTL 36-M (NO Type)	
35NCF01	36NOF01	35NCM01	36NOM01	0 to +60°C
35NCF02	36NOF02	35NCM02	36NOM02	-10 to +50°C
35NCF03	36NOF03	35NCM03	36NOM03	+20 to +80°C
35NCF04	36NOF04	35NCM04	36NOM04	+32 to +140°F
35NCF05	36NOF05	35NCM05	36NOM05	+14 to +122°F

### NT 35 / NT 36



- Large setting range
- Small size
- Simple to mount
- High switching performance

**NT 35: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

**NT 36: Thermostat (normally open);** contact maker for regulating of filter fans and heat exchangers or for switching signal devises when temperature limit has been exceeded. The contact closes when temperature is rising.

### Technical Data

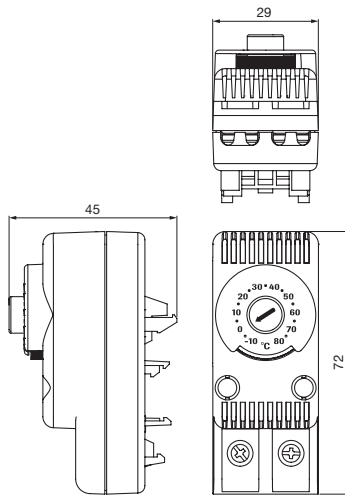
CE RoHS ISO9001 Patent

#### NT 35 / NT 36

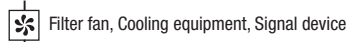
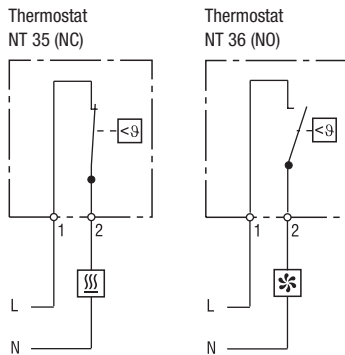
Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	72×45×29mm
Weight	approx. 50g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with wires, wire end ferrules must be used.

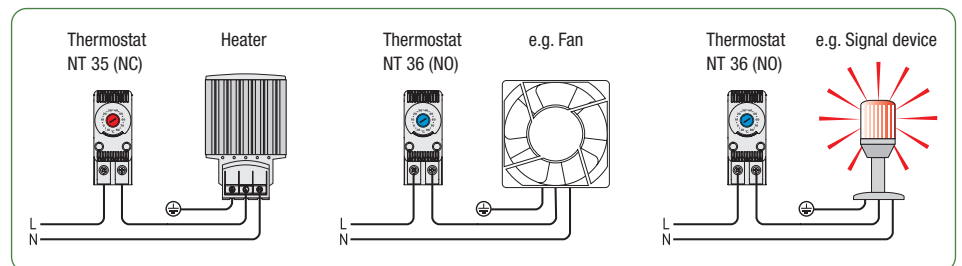
**Important note:** The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.



### Connection Diagrams



### Examples of Connection



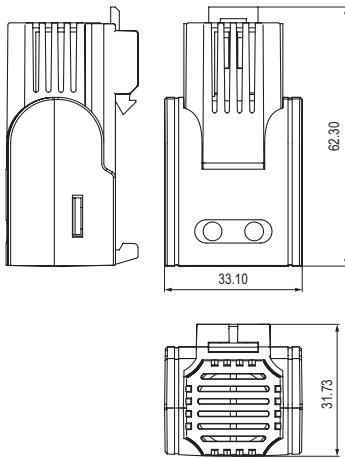
Art. No. Contact breaker (NC)	Art. No. Contact maker (NO)	Setting range
35NC01	36N001	-10 to +80°C



### NT 39-F/ NT 40-F



Self Up and Down, Easy to put onto Din rail and remove from Din Rail.



- Small size
- Default temperature settings
- Easy to install
- High switching accuracy

**Tamper-proof (Pre-set) Thermostat NT 39-F:** Contact breaker/NC (red casing) for regulating heaters or for switching signal devices when temperature has fallen below the minimum value. The contact opens when temperature is rising.

**Tamper-proof (Pre-set) Thermostat NT 40-F:** Contact maker/NO (blue casing) for regulating filter fans, heat exchangers, cooling devices or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

CE RoHS ISO9001 Patent

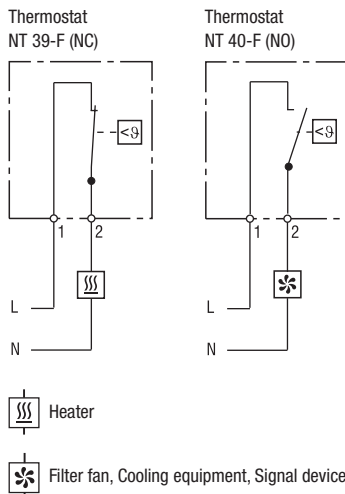
### Technical Data

#### NT 39-F / NT 40-F

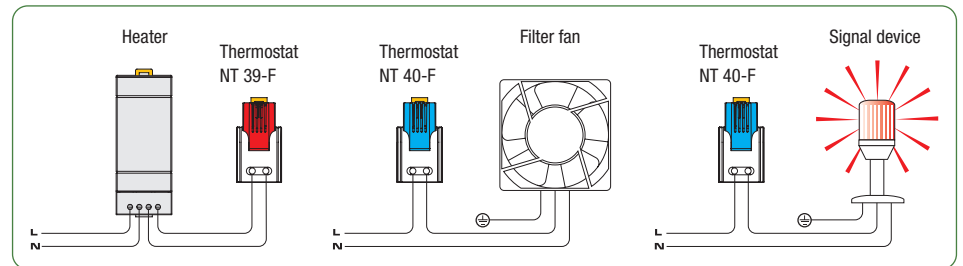
Operating voltage	all AC/DC voltage
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 5 (1.6) A / 120VAC, 10 (2) A DC 30W
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.8Nm max.: rigid/stranded <sup>1</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	33×33×58mm
Weight	approx. 30g
Fitting position	variable
Operating/Storage temperature	-40 to +80°C (-40 to +176°F) / -45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with stranded wires, wire end ferrules must be used.

### Connection Diagrams



### Examples of Connection



Art. No.	Contact	Switch-off temperature	Switch-on temperature
39NCF01	Contact breaker (NC)	+15°C / +59°F	+5°C / +41°F
39NCF02	Contact breaker (NC)	+25°C / +77°F	+15°C / +59°F
39NCF03	Contact breaker (NC)	+10°C / +50°F	0°C / +32°F
Art. No.	Contact	Switch-on temperature	Switch-off temperature
40NOF01	Contact breaker (NO)	+50°C / +122°F	+40°C / +104°F
40NOF02	Contact breaker (NO)	+60°C / +140°F	+50°C / +122°F
40NOF03	Contact breaker (NO)	+35°C / +95°F	+25°C / +77°F

### NTL 41-F / NTL 42-F

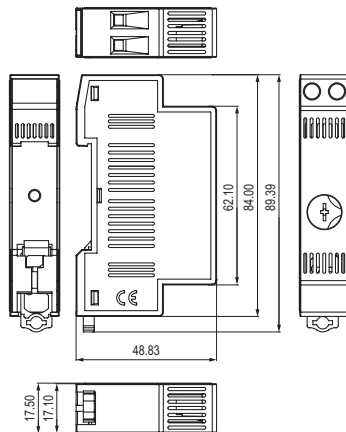
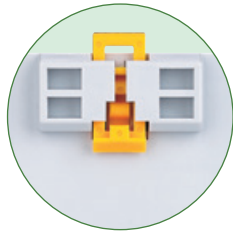


- Large setting range
- Small size
- Simple to mount
- High switching performance

**NTL 41-F: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

**NTL 42-F: Thermostat (normally open);** contact maker for regulating of filter fans and heat exchangers or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

Fast Fixing Part



CE RoHS ISO9001 Patent

### Technical Data

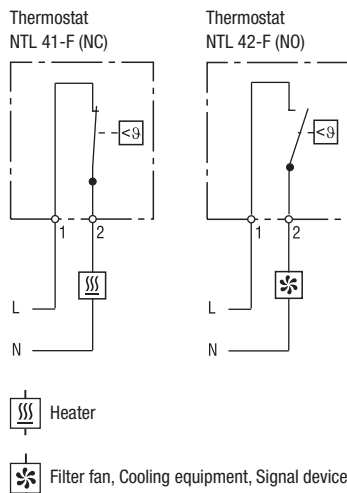
#### NTL 41-F / NTL 42-F

Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	83×48×17mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

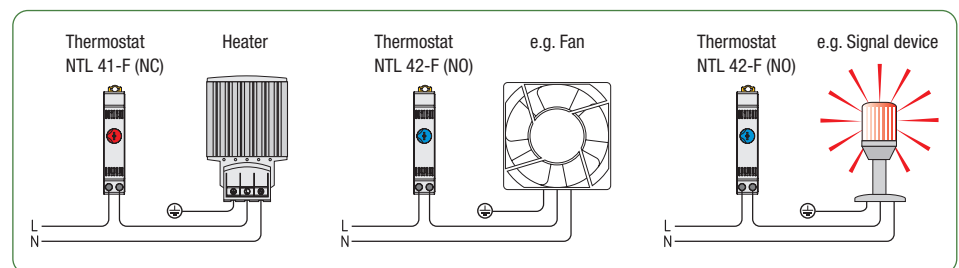
<sup>1</sup> When connecting with wires, wire end ferrules must be used.

**Important note:** The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

### Connection Diagrams



### Examples of Connection



Art. No. Contact breaker (NC)	Art. No. Contact maker (NO)	Setting range
41NCF01	42NOF01	-10 to +80°C
41NCF02	42NOF02	+14 to +176°F
41NCF03	42NOF03	0 to +60°C
41NCF04	42NOF04	+32 to +140°F

### NTL 93-F



- Large setting range
- Small size
- Simple to mount
- High switching performance
- With external sensor

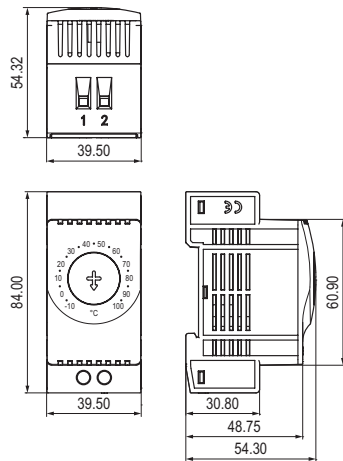
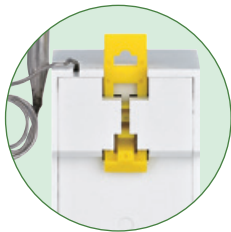
**NTL 93-F: Thermostat (normally closed);** contact breaker for regulating heaters. The contact opens when temperature is rising.

CE RoHS ISO9001 Patent

#### Technical Data

NTL 93-F	
Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	39.5×54.3×84mm
Weight	approx. 87g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

#### Fast Fixing Part

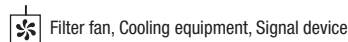
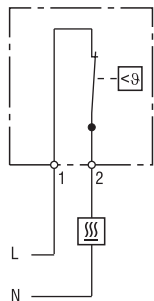


<sup>1</sup> When connecting with wires, wire end ferrules must be used.

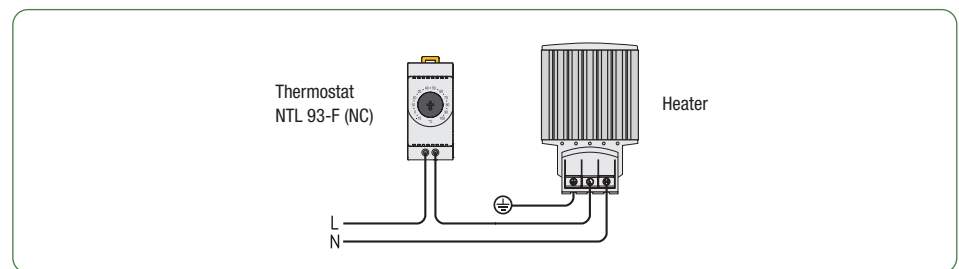
**Important note:** The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

#### Connection Diagrams

Thermostat  
NTL 93-F (NC)



#### Examples of Connection



Art. No.	Setting range
93F01	-10 to +80°C
93F02	0 to +90°C

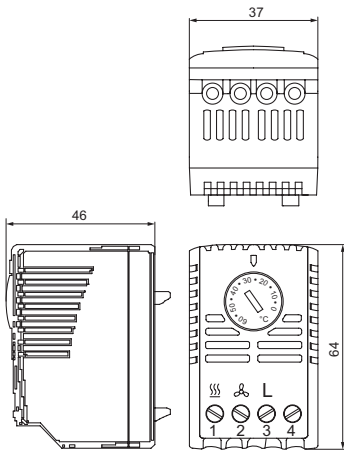


### FZK 021



- Adjustable temperature
- High switching capacity
- Small hysteresis
- Change-over contact
- Clip fixing

The mechanical thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact. Functionality: The temperature setting on the scale equals to the upper switch point, which means that the NC contact opens. The temperature setting minus switch temperature difference (and tolerances) equals to the lower switch point, which means that the NC contact closes.

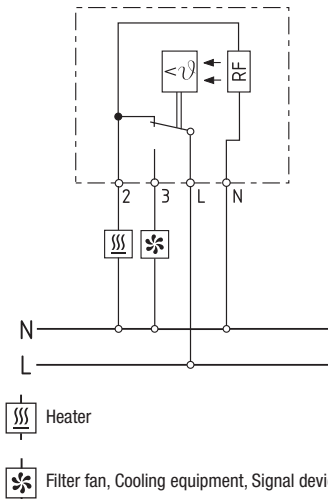


### Technical Data

CE RoHS ISO9001 Patent

FZK 021	
Operating voltage	120-250VAC, 50/60Hz
Switch temperature difference	+/-5°C <sup>1</sup>
Sensor element	thermostatic bimetal
Contact type	change-over snap-action contact
Service life	> 100,000 cycles
Min. switching capacity	10mA
Max. switching capacity	NC: 250VAC / 120VAC, 10 (4) A; DC 30W NO: 250VAC / 120VAC, 5 (2) A; DC 30W
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid/stranded <sup>2</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64x46x37mm
Weight	approx. 70g
Fitting position	variable
Operating/Storage temperature	-45 to +65°C (-49 to +149°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

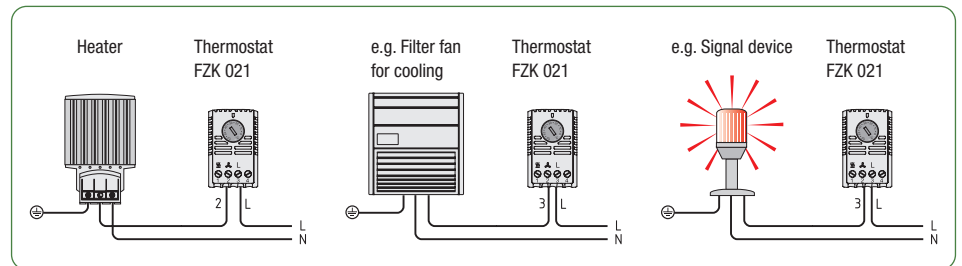
### Connection Diagrams



<sup>1</sup> 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 individual application.

<sup>2</sup> When connecting with wires, wire end ferrules must be used.

### Examples of Connection



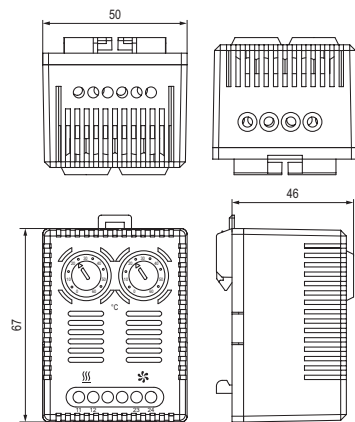
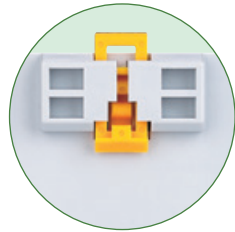
Art. No.	Setting range	Operating voltage
02170.0-00	0 to +60°C	120-250VAC, 50/60Hz

### NT 71-F



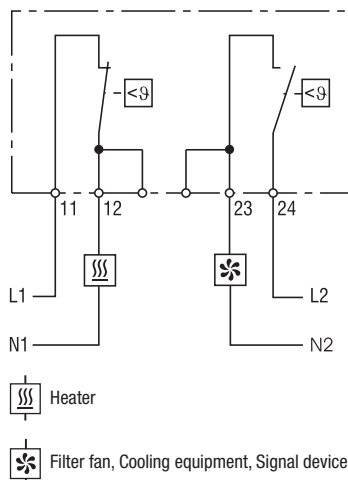
Patent Number: ZL 2018 3 0402401.9

#### Fast Fixing Part



#### Connection Diagrams

Thermostat NT 71-F (NC/NO)



WENZHOU NATURAL  
AUTOMATION EQUIPMENT CO., LTD.

- NO and NC in one casing
- Separate adjustable temperatures
- High switching capacity
- Terminals easily accessible
- Clip fixing

#### Two thermostats in one casing:

Thermostat (contact breaker, normally closed) for regulating heaters. The contact opens when temperature is rising.

Thermostat (contact maker, normally open) for regulating filter fans and heat exchangers or switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

Heaters and cooling equipment can be switched independently from each other with a temperature offset as opposed to the usual change-over contacts.

#### Technical Data

CE RoHS ISO9001 Patent

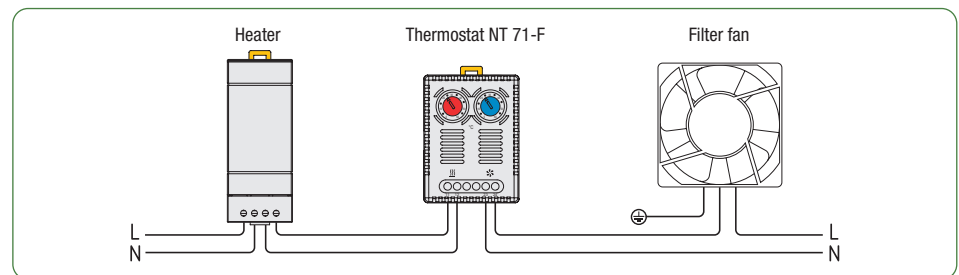
#### NT 71-F

Operating voltage	all AC/DC voltage
Switch temperature difference	+/-5°C
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	>100,000 cycles
Max. switching capacity	250VAC, 10 (2) A
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67×50×46mm
Weight	approx. 90g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with wires, wire end ferrules must be used.

Important note: The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

#### Examples of Connection



Art. No.	Setting range	Setting range
71NCNOF01	Contact breaker (NC) 0 to +60°C	Contact maker (NO) 0 to +60°C
71NCNOF02	Contact breaker (NC) +32 to 140°F	Contact maker (NO) +32 to 140°F
71NCNOF03	Contact breaker (NC) -10 to +50°C	Contact maker (NO) +20 to +80°C
71NCNOF04	Contact breaker (NC) +14 to 122°F	Contact maker (NO) +68 to +176°F
71NONOF05	Contact maker (NO) 0 to +60°C	Contact maker (NO) 0 to +60°C
71NONOF06	Contact maker (NO) +32 to 140°F	Contact maker (NO) +32 to 140°F

### NT 83-F

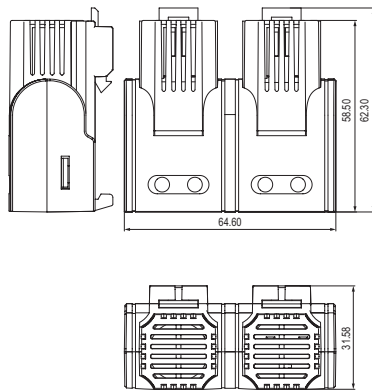


Self Up and Down, Easy to put onto Din rail and remove from Din Rail.

- Small size
- Default temperature settings
- Easy to install
- High switching accuracy

**Tamper-proof (Pre-set) Thermostat NT 83-F:** Contact breaker/NC (red casing) for regulating heaters or for switching signal devices when temperature has fallen below the minimum value. The contact opens when temperature is rising.

**Tamper-proof (Pre-set) Thermostat NT 83-F:** Contact maker/NO (blue casing) for regulating filter fans, heat exchangers, cooling devices or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.



### Technical Data

CE RoHS ISO9001 Patent

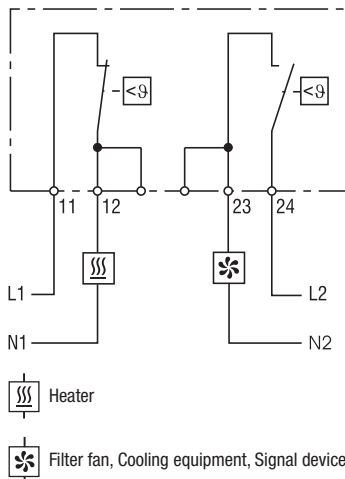
#### NT 83-F

Operating voltage	all AC/DC voltage
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 5 (1.6) A / 120VAC, 10 (2) A DC 30W
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.8Nm max.: rigid/stranded <sup>1</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	66×33×58mm
Weight	approx. 60g
Fitting position	variable
Operating/Storage temperature	-40 to +80°C (-40 to +176°F) / -45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

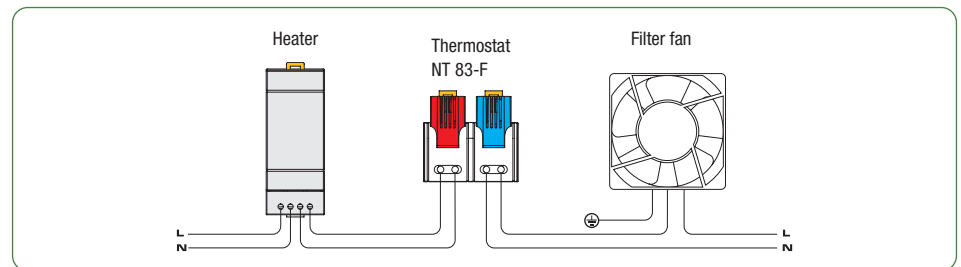
<sup>1</sup> When connecting with stranded wires, wire end ferrules must be used.

### Connection Diagrams

Thermostat NT 83-F (NC/NO)



### Examples of Connection



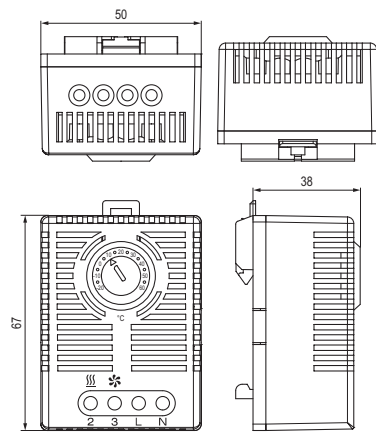
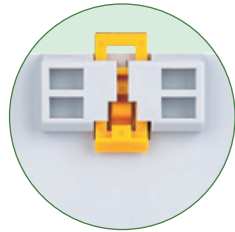
Art. No.	Contact breaker (NC)		Contact maker (NO)	
	Switch-off temperature	Switch-on temperature	Switch-on temperature	Switch-off temperature
83F01	+15°C / +59°F	+5°C / +41°F	+50°C / +122°F	+40°C / +104°F
83F02	+25°C / +77°F	+15°C / +59°F	+60°C / +140°F	+50°C / +122°F
83F03	+10°C / +50°F	0°C / +32°F	+35°C / +95°F	+25°C / +77°F

### NT 75-F

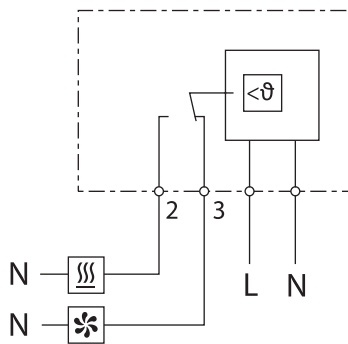


Patent Number: ZL 2018 3 0400071.X

#### Fast Fixing Part



#### Connection Diagrams



Heater

Filter fan, Cooling equipment, Signal device

- Adjustable temperature
- High switching capacity
- Small hysteresis
- Change-over contact
- Clip fixing

The electronic thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact. Functionality: The temperature setting on the scale equals to the upper switch point, which means that the NC contact opens. The temperature setting minus switch temperature difference (and tolerances) equals to the lower switch point, which means that the NC contact closes.

#### Technical Data

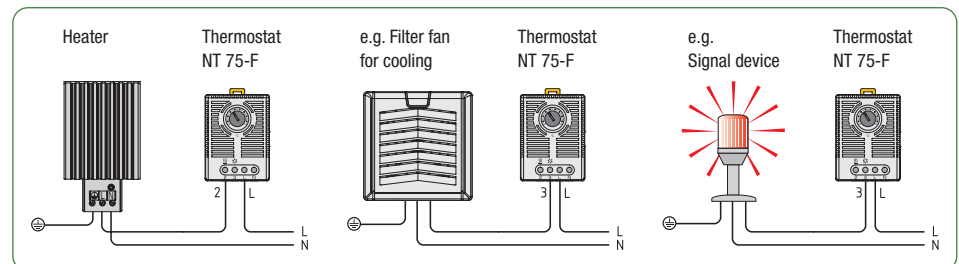
CE RoHS ISO9001 Patent

NT 75-F	
Operating voltage	120VAC or 230VAC
Switch temperature difference	5K (-3/+2K tolerance) <sup>1</sup>
Sensor element	NTC
Contact type	change-over snap-action contact
Service life	>100,000 cycles
Min. switching capacity	10mA
Max. switching capacity	NC: 250VAC, 10 (4) A NO: 250VAC, 5 (2) A
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid/stranded <sup>2</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67×50×38mm
Weight	approx. 60g
Fitting position	variable
Operating/Storage temperature	-20 to +60°C (-4 to +140°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> 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 individual application.

<sup>2</sup> When connecting with wires, wire end ferrules must be used.

#### Examples of Connection



Art. No.	Setting range	Operating voltage
75TF.0	-20 to +60°C	230VAC, 50/60Hz
75TF.9	-20 to +60°C	120VAC, 50/60Hz



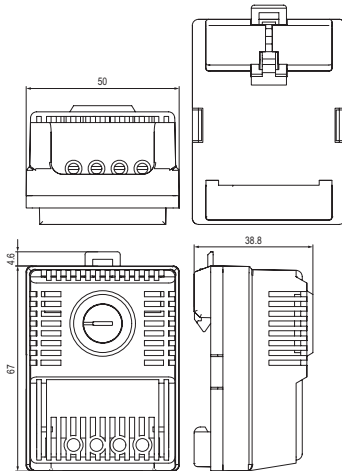
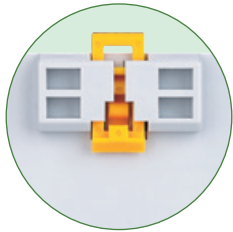
### NT 85-F



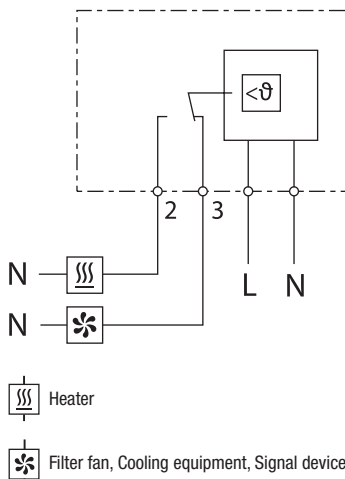
- Adjustable temperature
- High switching capacity
- With Fast Fixing Part on the backside, easy to fix onto DIN Rail and easy to remove from DIN Rail
- Small hysteresis
- Change-over contact
- Clip fixing

The electronic thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact. Functionality: The temperature setting on the scale equals to the upper switch point, which means that the NC contact opens. The temperature setting minus switch temperature difference (and tolerances) equals to the lower switch point, which means that the NC contact closes.

Fast Fixing Part



### Connection Diagrams



### Technical Data

CE RoHS ISO9001 Patent

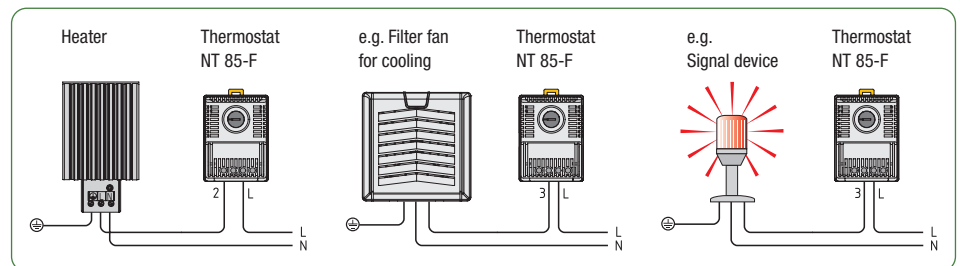
#### NT 85-F

Operating voltage	120VAC or 230VAC
Switch temperature difference	5K (-3/+2K tolerance) <sup>1</sup>
Sensor element	NTC
Contact type	change-over snap-action contact
Service life	>100,000 cycles
Min. switching capacity	10mA
Max. switching capacity	NC: 250VAC, 10 (4) A; NO: 250VAC, 5 (2) A
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid/stranded <sup>2</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	71.6×50×38.8mm
Weight	approx. 60g
Fitting position	variable
Operating/Storage temperature	-20 to +60°C (-4 to +140°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> 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 individual application.

<sup>2</sup> When connecting with wires, wire end ferrules must be used.

### Examples of Connection



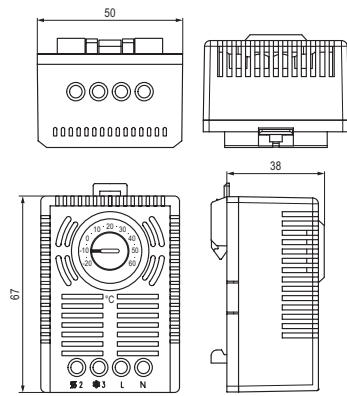
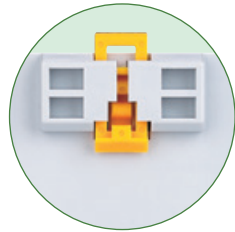
Art. No.	Setting range	Operating voltage
85TF.0	-20 to +60°C	230VAC, 50/60Hz
85TF.9	-20 to +60°C	120VAC, 50/60Hz

### NT 81-F

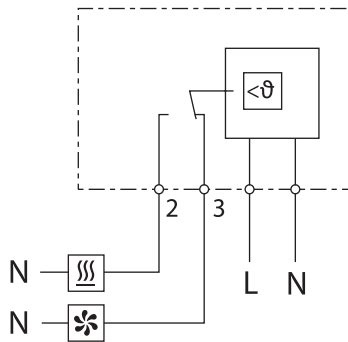


Patent Number: ZL 2018 3 0400071.X

#### Fast Fixing Part



#### Connection Diagrams



Heater

Filter fan, Cooling equipment, Signal device

- Adjustable temperature
- High switching capacity
- Small hysteresis
- Change-over contact
- Clip fixing

The electronic thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact. Functionality: The temperature setting on the scale equals to the upper switch point, which means that the NC contact opens. The temperature setting minus switch temperature difference (and tolerances) equals to the lower switch point, which means that the NC contact closes.

#### Technical Data

CE RoHS ISO9001 Patent

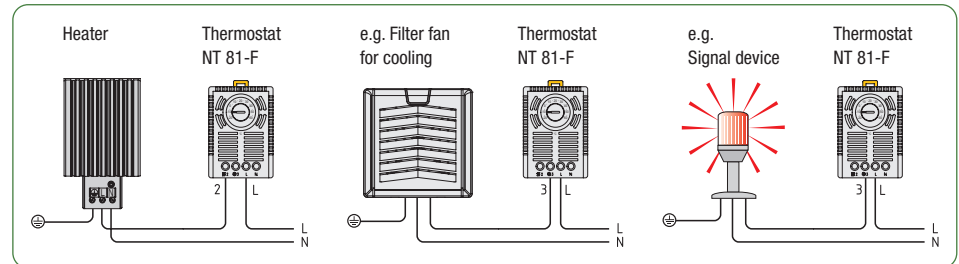
#### NT 81-F

Operating voltage	120VAC or 230VAC
Switch temperature difference	5K (-3/+2K tolerance) <sup>1</sup>
Sensor element	NTC
Contact type	change-over snap-action contact
Service life	>100,000 cycles
Min. switching capacity	10mA
Max. switching capacity	NC: 250VAC, 10 (4) A NO: 250VAC, 5 (2) A
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid/stranded <sup>2</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67×50×38mm
Weight	approx. 60g
Fitting position	variable
Operating/Storage temperature	-20 to +60°C (-4 to +140°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> 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 individual application.

<sup>2</sup> When connecting with wires, wire end ferrules must be used.

#### Examples of Connection



Art. No.	Setting range	Operating voltage
81TF.0	-20 to +60°C	230VAC, 50/60Hz
81TF.9	-20 to +60°C	120VAC, 50/60Hz

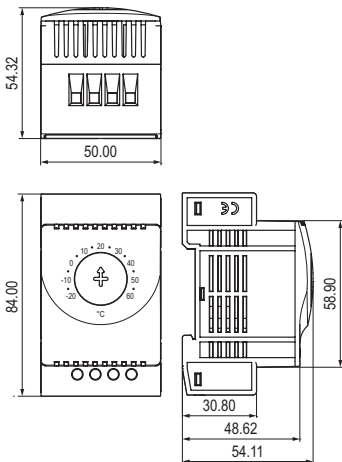
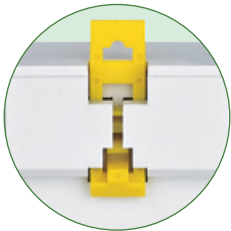
### NT 94-F



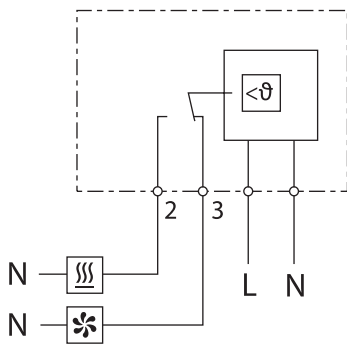
- Adjustable temperature
- High switching capacity
- Small hysteresis
- Change-over contact
- Clip fixing

The electronic thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact. Functionality: The temperature setting on the scale equals to the upper switch point, which means that the NC contact opens. The temperature setting minus switch temperature difference (and tolerances) equals to the lower switch point, which means that the NC contact closes.

#### Fast Fixing Part



#### Connection Diagrams



Heater

Filter fan, Cooling equipment, Signal device

#### Technical Data

CE RoHS ISO9001 Patent

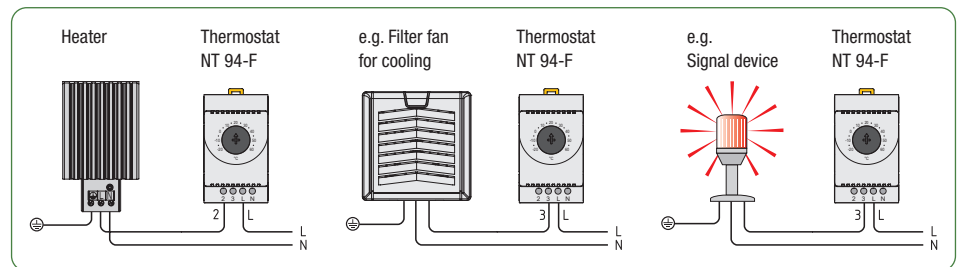
#### NT 94-F

Operating voltage	120VAC or 230VAC
Switch temperature difference	5K (-3/+2K tolerance) <sup>1</sup>
Sensor element	NTC
Contact type	change-over snap-action contact
Service life	>100,000 cycles
Min. switching capacity	10mA
Max. switching capacity	NC: 250VAC, 10 (4) A NO: 250VAC, 5 (2) A
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid/stranded <sup>2</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	50×55×84mm
Weight	approx. 77g
Fitting position	variable
Operating/Storage temperature	-20 to +60°C (-4 to +140°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> 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 individual application.

<sup>2</sup> When connecting with wires, wire end ferrules must be used.

#### Examples of Connection



Art. No.	Setting range	Operating voltage
94NCNO.0	-20 to +60°C	230VAC, 50/60Hz
94NCNO.9	-20 to +60°C	120VAC, 50/60Hz

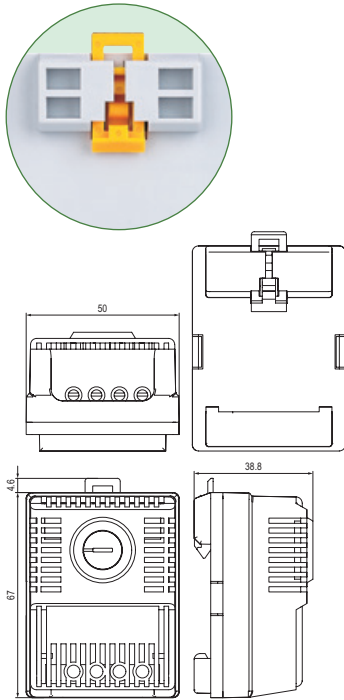
### NT 84-F



- Adjustable relative humidity
- With Fast Fixing Part on the backside, easy to fix onto DIN Rail and easy to remove from DIN Rail
- Change-over contact
- High switching capacity
- Easily accessible terminals
- Clip fixing

The electromechanical hygrostat is designed to control enclosure heaters so that the dew point is raised when a critical relative humidity of 65% is exceeded. In this way condensation and corrosion in enclosures with electric/electronic components is effectively prevented.

Fast Fixing Part



### Technical Data

CE RoHS ISO9001 Patent

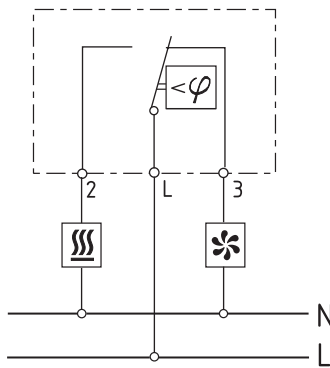
#### NT 84-F

Operating voltage	all AC/DC voltage
Switch difference <sup>1</sup>	+/-5% RH
Permissible air velocity	15m/sec.
Contact type	change-over contact
Service life	>50,000 cycles
Min. switching capacity	20VAC / DC 100mA
Max. switching capacity	250VAC, 5A / DC 20W
Connection	3-pole terminal for 2.5mm <sup>2</sup> , clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14); stranded wire <sup>2</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	71.6×50×38.8mm
Weight	approx. 60g
Fitting position	variable
Operating/Storage temperature	0 to +60°C (+32 to +140°F) / -40 to +60°C (-40 to +140°F)
Operating/Storage humidity	max. 95% RH (non-condensing)
Protection type	IP20

<sup>1</sup> at 50% RH

<sup>2</sup> When connecting with stranded wires, wire end ferrules must be used.

### Connection Diagrams

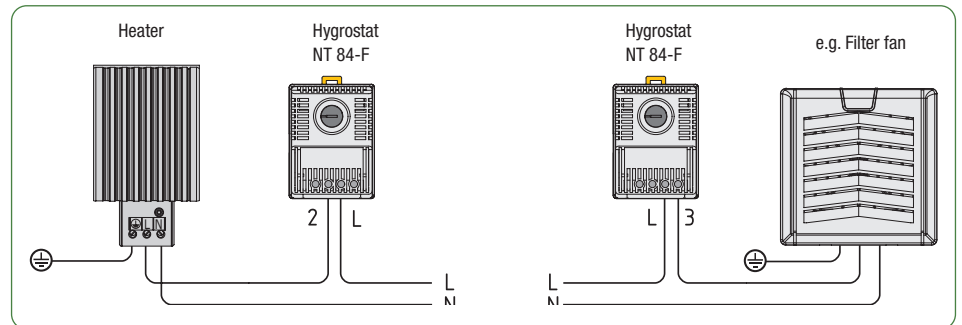


Heater



Filter fan, Cooling equipment, Signal device

### Examples of Connection



Art. No.	Setting range	Operating voltage
84HF	35 to 95% RH	20VAC/DC, 250VAC

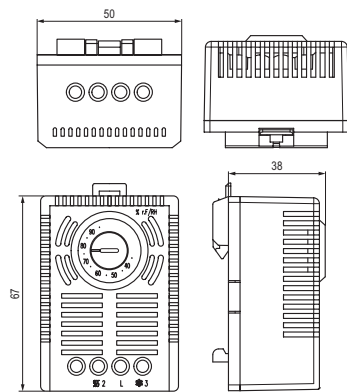
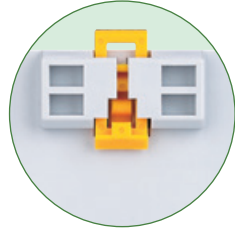


### NT 82-F



Patent Number: ZL 2018 3 0400071.X

#### Fast Fixing Part



- Adjustable relative humidity
- Change-over contact
- High switching capacity
- Easily accessible terminals
- Clip fixing

The electromechanical hygostat is designed to control enclosure heaters so that the dew point is raised when a critical relative humidity of 65% is exceeded. In this way condensation and corrosion in enclosures with electric/electronic components is effectively prevented.

CE RoHS ISO9001 Patent

#### Technical Data

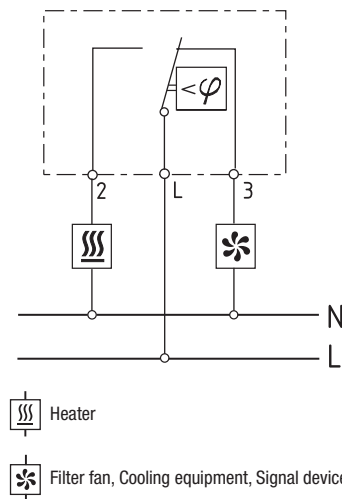
##### NT 82-F

Operating voltage	all AC/DC voltage
Switch difference <sup>1</sup>	+/-5% RH
Permissible air velocity	15m/sec.
Contact type	change-over contact
Service life	>50,000 cycles
Min. switching capacity	20VAC / DC 100mA
Max. switching capacity	250VAC, 5A / DC 20W
Connection	3-pole terminal for 2.5mm <sup>2</sup> , clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14); stranded wire <sup>2</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67×50×38mm
Weight	approx. 60g
Fitting position	variable
Operating/Storage temperature	0 to +60°C (+32 to +140°F) / -40 to +60°C (-40 to +140°F)
Operating/Storage humidity	max. 95% RH (non-condensing)
Protection type	IP20

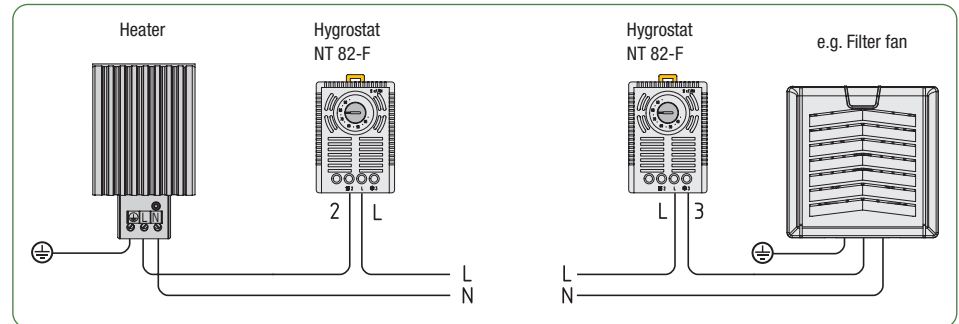
<sup>1</sup> at 50% RH

<sup>2</sup> When connecting with stranded wires, wire end ferrules must be used.

#### Connection Diagrams



#### Examples of Connection



Art. No.	Setting range	Operating voltage
82HF	35 to 95% RH	20VAC/DC, 250VAC

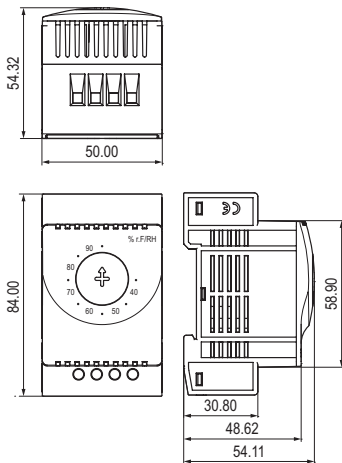
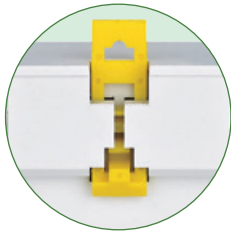
### NT 95-F



- Adjustable relative humidity
- Change-over contact
- High switching capacity
- Easily accessible terminals
- Clip fixing

The electromechanical hygrostat is designed to control enclosure heaters so that the dew point is raised when a critical relative humidity of 65% is exceeded. In this way condensation and corrosion in enclosures with electric/electronic components is effectively prevented.

#### Fast Fixing Part



CE RoHS ISO9001 Patent

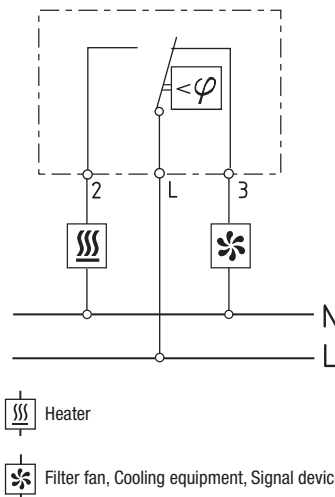
#### Technical Data

NT 95-F	
Operating voltage	all AC/DC voltage
Switch difference <sup>1</sup>	+/-5% RH
Permissible air velocity	15m/sec.
Contact type	change-over contact
Service life	>50,000 cycles
Min. switching capacity	20VAC / DC 100mA
Max. switching capacity	250VAC, 5A / DC 20W
Connection	3-pole terminal for 2.5mm <sup>2</sup> , clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14); stranded wire <sup>2</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	50×55×84mm
Weight	approx. 69g
Fitting position	variable
Operating/Storage temperature	0 to +60°C (+32 to +140°F) / -40 to +60°C (-40 to +140°F)
Operating/Storage humidity	max. 95% RH (non-condensing)
Protection type	IP20

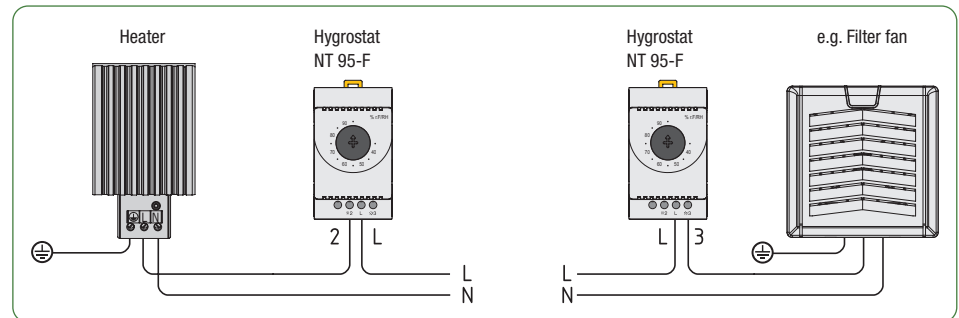
<sup>1</sup> at 50% RH

<sup>2</sup> When connecting with stranded wires, wire end ferrules must be used.

#### Connection Diagrams



#### Examples of Connection



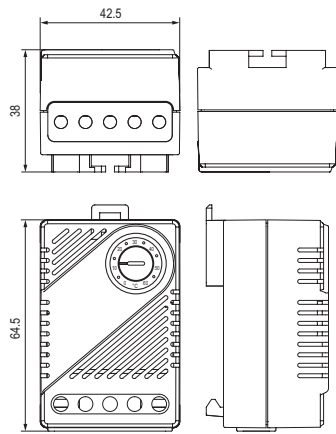
Art. No.	Setting range	Operating voltage
95HF	35 to 95% RH	20VAC/DC, 250VAC

### NTL 76-M (NTL 76)

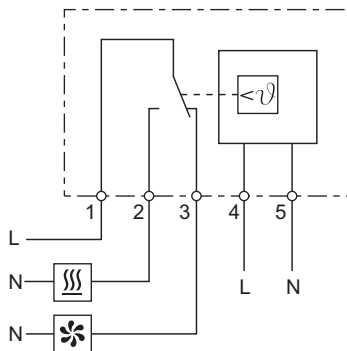


Patent Number: ZL 2019 3 0327490.X

#### Fast Fixing Part



#### Connection Diagrams



Heater



Filter fan, Cooling equipment, Signal device

- Small hysteresis
- Status indicator (LED)
- Change-over contact
- Clip fixing

The electronic thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via relay with changeover contact. The LED integrated in the adjustment knob is lit when the NC is closed. (e.g. when a connected heater is operating).

#### Technical Data

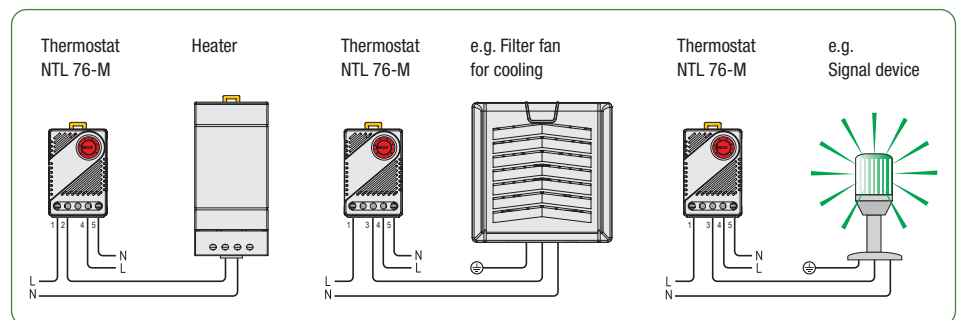
CE RoHS ISO9001 Patent

#### NTL 76-M (NTL 76)

Operating voltage	120VAC or 230VAC
Switch temperature difference	4K ( $\pm 1K$ tolerance) at +20°C (+68°F) <sup>1</sup>
Sensor element	NTC
Reaction time	approx. 5 sec.
Contact type	change-over contact (relay)
Service life	> 50,000 cycles
Max. switching capacity (relay output)	240VAC / 120VAC, 8 (1.6) A
Max. inrush current	AC 16A for 10 sec.
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid/stranded wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL 94V-0, light grey
Dimensions	64.5×42.5×38mm
Weight	approx. 70g
Fitting position	vertical
Operating/Storage temperature	-40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with stranded wires, wire end ferrules must be used.

#### Examples of Connection



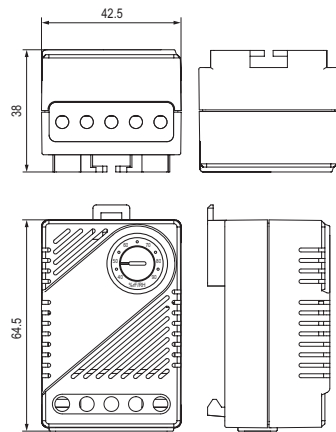
Art. No.	Setting range	Operating voltage
76M01	-20 to +60°C	230VAC, 50/60Hz
76M02	-4 to +140°F	230VAC, 50/60Hz
76M03	-20 to +60°C	120VAC, 50/60Hz
76M04	-4 to +140°F	120VAC, 50/60Hz

### NTL 77-M (NTL 77)

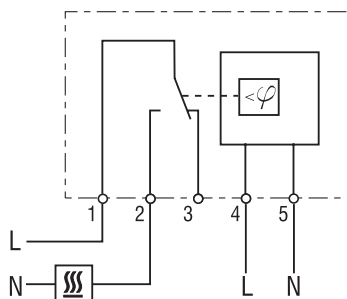


Patent Number: ZL 2019 3 0327490.X

#### Fast Fixing Part



#### Connection Diagrams



Heater



Filter fan, Cooling equipment, Signal device

- Adjustable and pre-set relative humidity
- Status indicator (LED)
- High switching capacity
- Clip fixing
- Temperature-compensated

The electronic hygrostat senses the relative humidity in an enclosure with electric/electronic components and turns on a heater at the set point, helping prevent the formation of condensation in the enclosure. The LED integrated in the adjustment knob is lit when the connected heater is in operation.

#### Technical Data

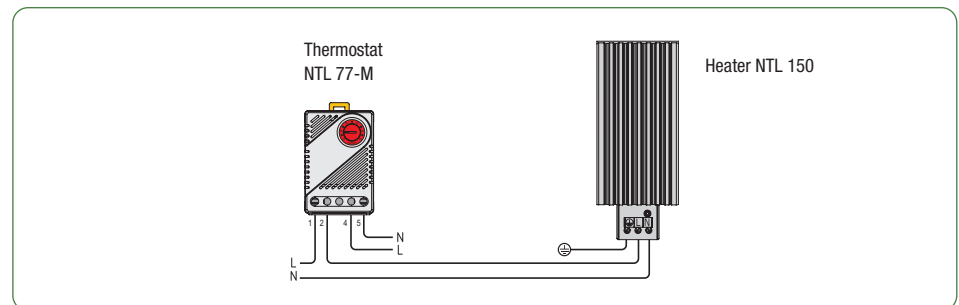
CE RoHS ISO9001 Patent

#### NTL 77-M (NTL 77)

Operating voltage	120VAC or 230VAC
Switch difference	5% RH ( $\pm 3\%$ RH tolerance) at $+25^{\circ}\text{C}$ ( $+77^{\circ}\text{F}$ ), 50% RH
Reaction time	5 sec.
Contact type	change-over contact (relay)
Service life	> 50,000 cycles
Max. switching capacity (relay output)	240VAC / 120VAC 8 (1.6) A
Max. inrush current	AC 16A for 10 sec.
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid/stranded wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.5×42.5×38mm
Weight	approx. 70g
Fitting position	Fitting position
Operating/Storage temperature	0 to $+60^{\circ}\text{C}$ ( $+32$ to $+140^{\circ}\text{F}$ ) / $-20$ to $+70^{\circ}\text{C}$ ( $-4$ to $+158^{\circ}\text{F}$ )
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with stranded wires, wire end ferrules must be used.

#### Examples of Connection



Art. No.	Setting range	Operating voltage
77M.0	40 to 90% RH	230VAC, 50/60Hz
77M.9	40 to 90% RH	120VAC, 50/60Hz

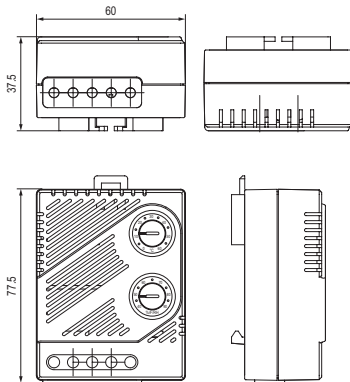


### NTL 78-M (NTL 78)

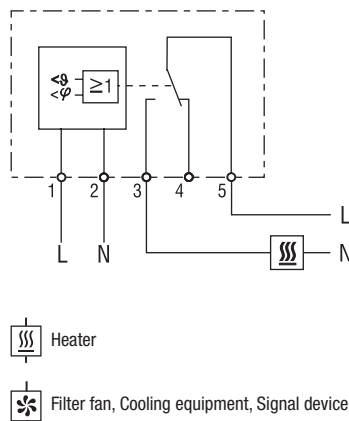


Patent Number: ZL 2019 3 0323311.5

#### Fast Fixing Part



#### Connection Diagrams



- Temperature and humidity adjustable
- Wide voltage range
- Operating temperature down to  $-40^{\circ}\text{C}$
- High switching capacity
- Status indicator (LED)

The electronic hygrotherm senses the ambient temperature and relative humidity in an enclosure with electric/electronic components and turns on a heater (or alternatively a fan) at either set point, helping prevent the formation of condensation in the enclosure. Due to its wide voltage range the hygrotherm can be utilised anywhere in the world. The LED integrated in the adjustment knob on the active controller is lit when the connected device is in operation.

#### Technical Data

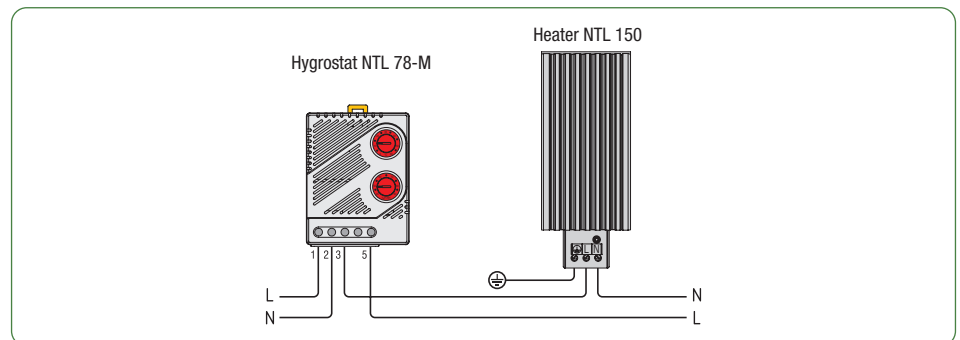
CE RoHS ISO9001 Patent

#### NTL 78-M (NTL 78)

Operating voltage	120VAC or 230VAC
Switch difference	temperature: 2K ( $\pm 1\text{K}$ tolerance) at $+25^{\circ}\text{C}$ ( $+77^{\circ}\text{F}$ ), 50% RH humidity: 4% RH ( $\pm 1\%$ tolerance) at $+25^{\circ}\text{C}$ ( $+77^{\circ}\text{F}$ ), 50% RH
Reaction time (humidity)	approx. 5 sec.
Contact type	change-over contact (relay)
Service life VDE	NO/NC > 15,000 cycles; UL: NO/NC > 30,000 cycles
Max. switching capacity (relay output)	240VAC, 10(1.6) A / 120VAC, 15(1.6) A
Max. inrush current	AC 30A for 10 sec.
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid/stranded <sup>1</sup> wire 2.5mm <sup>2</sup> (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	77.5×60×37.5mm
Weight	approx. 0.2kg
Fitting position	vertical
Operating/Storage temperature	$-40$ to $+60^{\circ}\text{C}$ ( $-40$ to $+140^{\circ}\text{F}$ )
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with stranded wires, wire end ferrules must be used.

#### Examples of Connection



Art. No.	Setting range temperature	Setting range humidity	Operating voltage
78M01	0 to $+60^{\circ}\text{C}$	50 to 90% RH	230VAC, 50/60Hz
78M02	$+32$ to $140^{\circ}\text{F}$	50 to 90% RH	230VAC, 50/60Hz
78M03	0 to $+60^{\circ}\text{C}$	50 to 90% RH	120VAC, 50/60Hz
78M04	$+32$ to $140^{\circ}\text{F}$	50 to 90% RH	120VAC, 50/60Hz

### NTL-2000



- Compact design
- Set temperature
- High switching capacity

#### Temperature's scale adjustment:

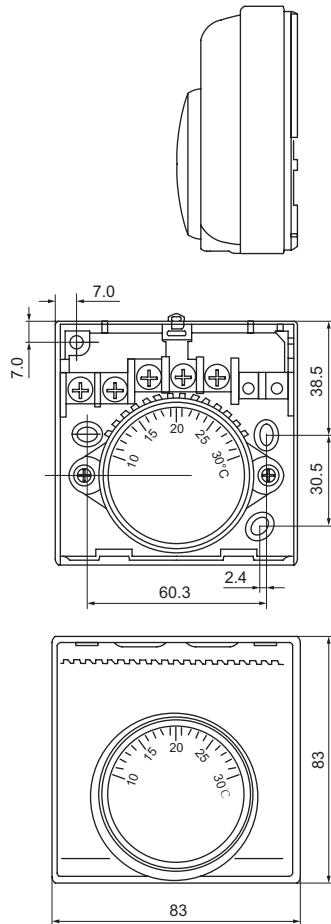
After almost two days from the installation, to obtain a precise scale adjustment, measure the room temperature with a reference thermometer, placed aside the thermostat, Holding the shagrened part of the Knob, turn the index with a coin, to reach the same value of the thermometer, We suggest to install the equipment at about 1.5 mt from the floor and from any heat source.

CE RoHS ISO9001 Patent

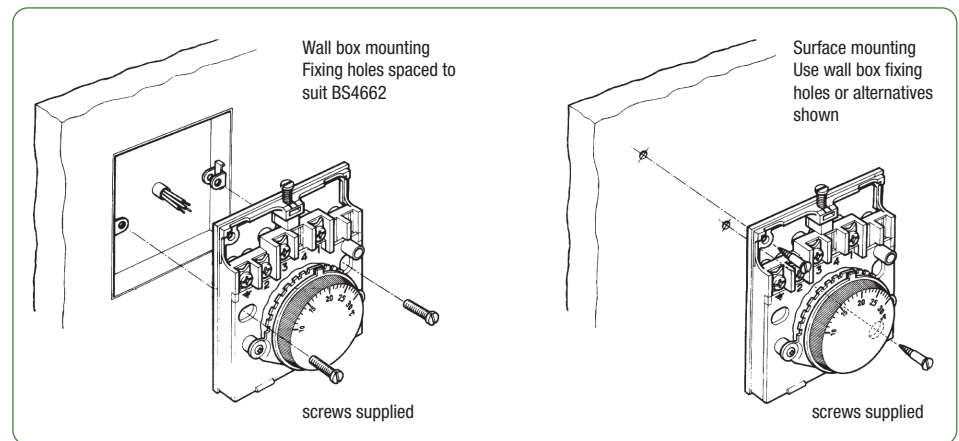
#### Technical Data

NTL-2000	
Operating voltage	120VAC or 230VAC
Max load	6A
Temperature range	10°C-30°C
Function	heating and cooling
Sensor	internal
Ambient temperature	-20~30°C
Protect class	IP20
Material	fireproof UL 94 V-0
Sensor type	gas filled sylphon
Note	with on/off switch, without LED indicator for power

Art. No.	Control type	Control type	Description
NTL-2000A	Mechanical type	With Internal Gas filled sylphon	Gas filled sylphon
NTL-2000B	Mechanical type	With on/off switch	Gas filled sylphon
NTL-2000C	Mechanical type	With LED indicator	Gas filled sylphon
NTL-2000D	Mechanical type	With on/off switch and LED indicator	Gas filled sylphon



#### Mounting the Thermostat



### NTL-2000

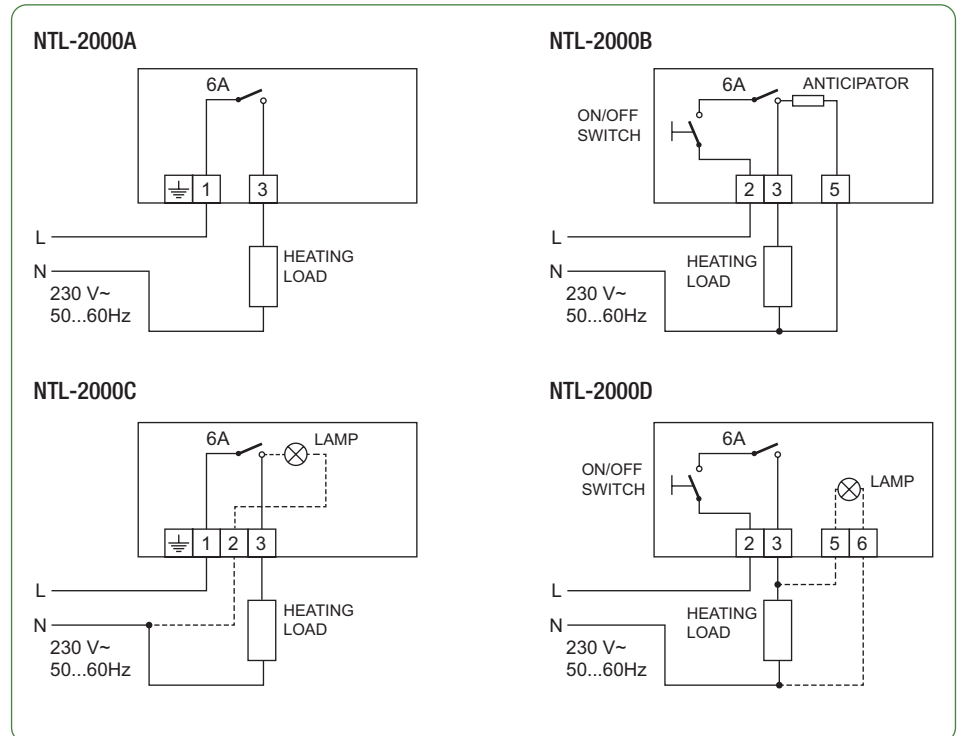


- Compact design
- Set temperature
- High switching capacity

#### Temperature's scale adjustment:

After almost two days from the installation, to obtain a precise scale adjustment, measure the room temperature with a reference thermometer, placed aside the thermostat, Holding the shagrened part of the Knob, turn the index with a coin, to reach the same value of the thermometer, We suggest to install the equipment at about 1.5 mt from the floor and from any heat source.

#### Wiring Diagram



NTL-2000A: With internal gas filled syphon

NTL-2000B: With ON/OFF switch, With internal gas filled syphon

NTL-2000C: With LED indicator, With internal gas filled syphon

NTL-2000D: With ON/OFF switch and LED indicator, With internal gas filled syphon

### NTL-7000



Patent Number: ZL 2013 3 0163121.4

- Compact design
- Set temperature
- High switching capacity

#### Temperature's scale adjustment:

After almost two days from the installation, to obtain a precise scale adjustment, measure the room temperature with a reference thermometer, placed aside the thermostat, Holding the shagrened part of the Knob, turn the index with a coin, to reach the same value of the thermometer, We suggest to install the equipment at about 1.5 mt from the floor and from any heat source.

CE RoHS ISO9001 Patent

#### Technical Data

##### NTL-7000

Operating voltage	NTL 7000A: all AC/DC voltage, DC max. 30W 7000B: All AC Voltage
Max load	NTL-7000A: 16A, NTL-7000B: 4A
Temperature range	0-40°C
Function	heating, cooling
Switching differential	±4K
Sensor	NTL-7000A/7000B: internal
Ambient temperature	-10~50°C
Protect class	IP20
Material	fireproof UL 94 V-0
Sensor type	NTL-7000A/7000B: thermostatic bimetal

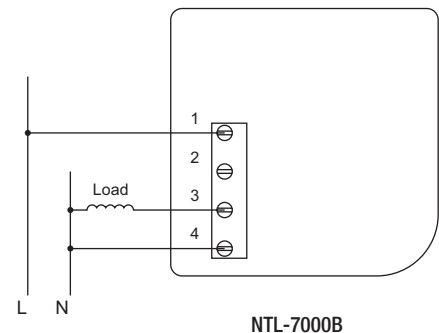
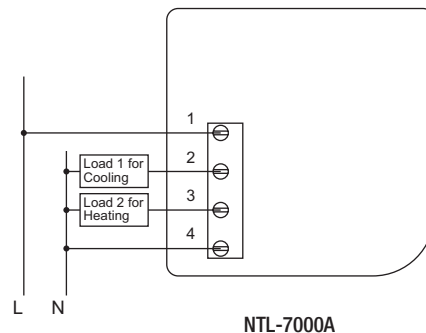
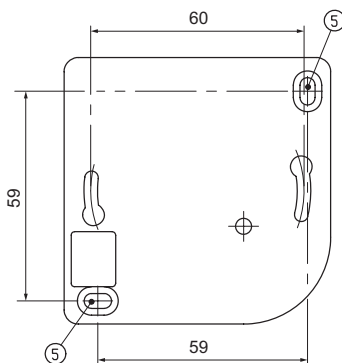
Art. No.	Control type	Control type	Description
NTL-7000A	Mechanical type	NO+NC type	with internal thermostatic bimetal sensor
NTL-7000A1	Mechanical type	NO type	with internal thermostatic bimetal sensor
NTL-7000A2	Mechanical type	NC type	with internal thermostatic bimetal sensor
NTL-7000B	Mechanical type	with switch, NO+NC type	with internal thermostatic bimetal sensor
NTL-7000B1	Mechanical type	with switch, NO type	with internal thermostatic bimetal sensor
NTL-7000B2	Mechanical type	with switch, NC type	with internal thermostatic bimetal sensor

#### Important

Accelerating resistance with voltage to 220-250V a.c.

This thermostat is provided with an accelerating resistance which must be absolutely connected in order to obtain the regulation's performances. The terminal 4 has thus to be connected to the neutral according to the diagram shown on the cover, This connection allows also the wording of the pilot lamp which indicates the operation of the heating.

#### Wiring Diagram



### NTL-8000



- Compact design
- Set temperature
- High switching capacity

Especially used for controlling fan filter, heater and heat exchanger, also could be monitoring the electric cabinet inner temperature when working as signal arouser.

#### Technical Data

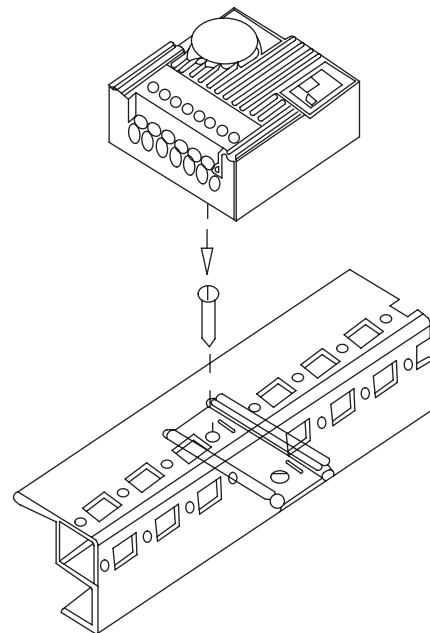
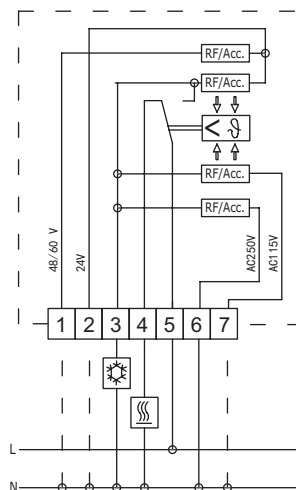
CE RoHS ISO9001 Patent

NTL-8000	
Operating voltage	24/48/60/115/250VAC
Max load	16A
Temperature range	-20~60°C
Function	heating, cooling
Switching differential	1K+/-0.8K
Sensor	internal
Ambient temperature	-5~60°C
Protect class	IP20
Material	fireproof UL 94 V-0
Sensor type	NTC

#### Important

1. Make bimetal sensor as heat sensitivity set to feedback of heat
2. Contact point scheme: single switchover contact point as instant switch component
3. Voltage scope is wide any type could be used from 24V to 230V
4. Time-saving connection, terminal block could be installed with screw from outside
5. Easy installation, could be installed to 35mm din rail vertically or horizontally according to EN50 022, it could be clipped to NS/35-ES cabinet profile with its accessory adapter.

48V 60V N	24V N			(L1*) L	(L2*) 250V N	115V N
1	2	3	4	5	6	7





### NTL-8000-F



- Compact design
- Set temperature
- High switching capacity

Especially used for controlling fan filter, heater and heat exchanger, also could be monitoring the electric cabinet inner temperature when working as signal arouser.

CE RoHS ISO9001 Patent

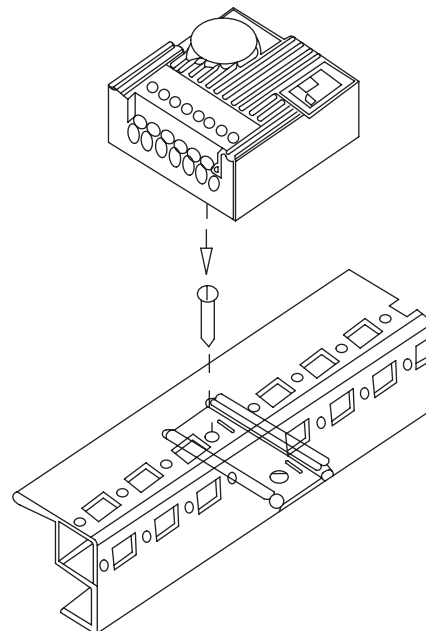
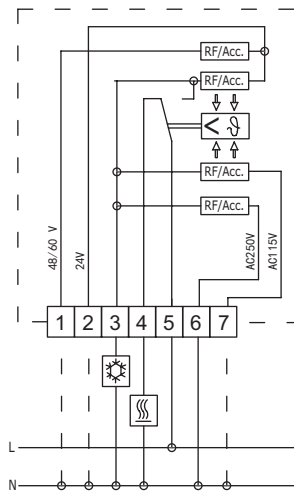
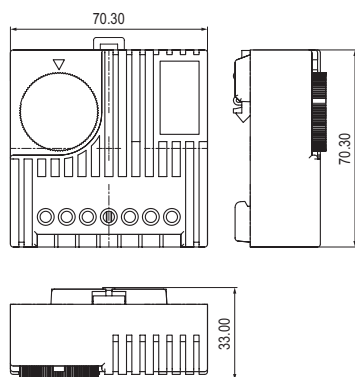
#### Technical Data

NTL-8000-F	
Operating voltage	24/48/60/115/250VAC
Max load	16A
Temperature range	-20~60°C
Function	heating, cooling
Switching Differential	1K+/-0.8K
Sensor	internal
Ambient temperature	-5~60°C
Protect class	IP20
Material	fireproof UL 94 V-0
Sensor type	NTC

#### Important

1. Make bimetal sensor as heat sensitivity set to feedback of heat
2. Contact point scheme: single switchover contact point as instant switch component
3. Voltage scope is wide any type could be used from 24V to 230V
4. Time-saving connection, terminal block could be installed with screw from outside
5. Easy installation, could be installed to 35mm din rail vertically or horizontally according to EN50 022, it could be clipped to NS/35-ES cabinet profile with its accessory adapter.

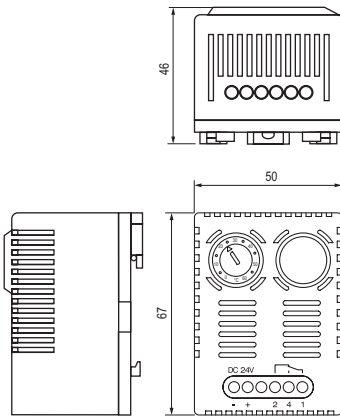
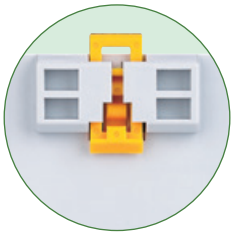
48V 60V N	24V N	⚡	⏏	(L1*) L	(L2*) 250V N	115V N
1	2	3	4	5	6	7



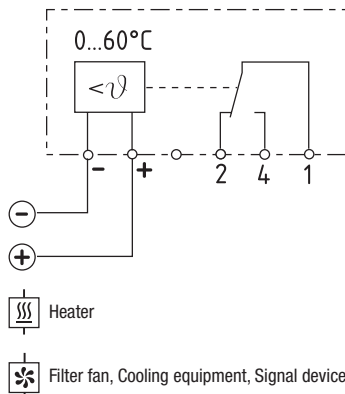
### NT 72-F



Fast Fixing Part



### Connection Diagrams



- High DC breaking capacity
- Low hysteresis
- Adjustable temperature
- Change-over contact
- Clip fixing

Electronic thermostat for regulating high performance 24VDC equipment. Heating or cooling appliances as well as signal devices can be switched via the potential free change-over contact. In comparison to mechanical thermostats, the NT 72 has a low hysteresis making the switching point and setting accuracy more precise.

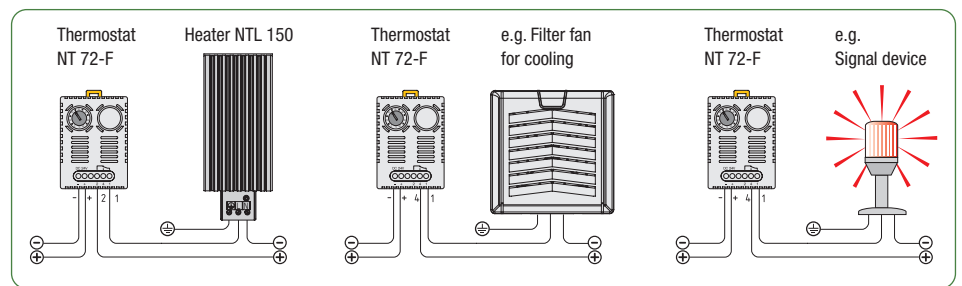
### Technical Data

CE RoHS ISO9001 Patent

NT 72-F	
Operating voltage	24VDC
Switch temperature difference	approx. 3K
Sensor element	PTC
Contact type	change-over
Service life	change-over
Max. switching capacity	28VDC, 16A
Max. inrush current	DC 16A
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67×50×46mm
Weight	approx. 80g
Fitting position	vertical
Operating/Storage temperature	-10 to +60°C (+14 to +140°F) / -45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with stranded wires, wire end ferrules must be used.

### Examples of Connection



Art. No.	Setting range	Operating voltage
72FDT	0 to +60°C	24VDC (20-28VDC)

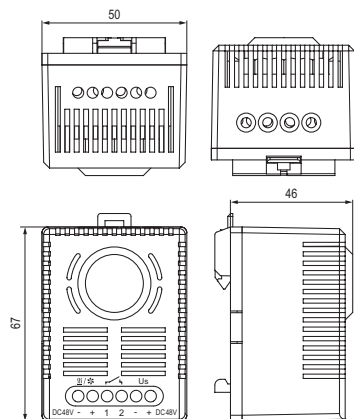
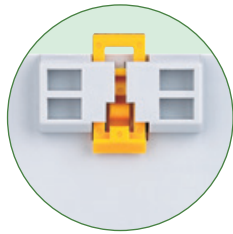
### NT 73-F



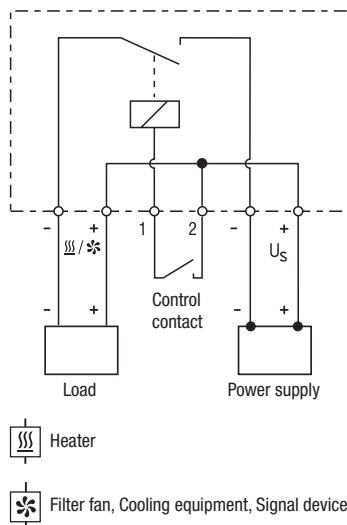
- High DC switching capacity
- Variety of applications
- Compact design
- Simple connection
- Clip fixing

The Switch Module is designed for switching DC equipment with high currents. It is controlled via an external, potential-free contact (thermostat or hygrostat) connected between terminals 1 and 2. For switching the Module, the internally generated signal current has to be used. It must be ensured that the external contact can safely switch this signal current. The NT 73-F is available in 24VDC and 48VDC versions.

#### Fast Fixing Part



#### Connection Diagrams



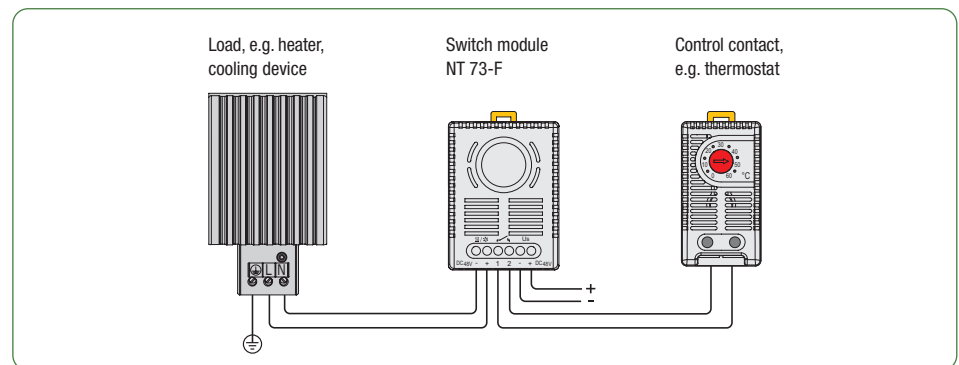
CE RoHS ISO9001 Patent

#### Technical Data

NT 73-F	
Operating voltage	24VDC or 48VDC
Contact type	contact maker normally open (Relay/MOSFET)
Service life	>100,000 cycles
Max. inrush current	DC 16A
Connection	6-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm <sup>2</sup> (AWG 14) stranded wire <sup>1</sup> 1.5mm <sup>2</sup> (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67×50×46mm
Weight	approx. 90g
Fitting position	variable
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

<sup>1</sup> When connecting with stranded wires, wire end ferrules must be used.

#### Examples of Connection



Art. No.	Max. switching capacity	Signal current	Operating voltage
73F01	28VDC, 16A	13mA at 20VDC / 22mA at 28VDC	24VDC (20-28VDC)
73F02	56VDC, 16A	10mA at 38VDC / 18mA at 56VDC	48VDC (38-56VDC)

# Heating

Semiconductor Heater, Touch-safe Heater, Fan Heater



CE RoHS ISO9001 Patent



### NTL 151 | 15W to 150W



- Pressure clamp connectors
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

#### Technical Data

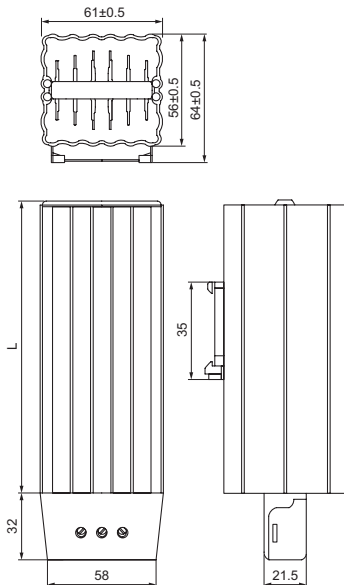
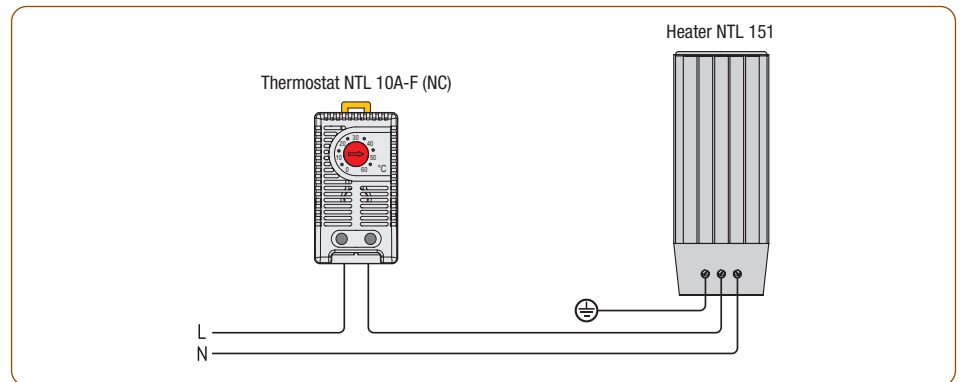
CE RoHS ISO9001 Patent

#### NTL 151

Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110 V, max. 265 V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure clamps for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

#### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
151015	15W	65mm	0.25kg
151030	30W	65mm	0.25kg
151045	45W	65mm	0.25kg
151050	50W	80mm	0.35kg
151060	60W	140mm	0.35kg
151075	75W	140mm	0.45kg
151100	100W	140mm	0.45kg
151150	150W	220mm	0.65kg

<sup>2</sup> at +20°C (+68°F) ambient temperature



### NTL 151SB | 15W to 150W



Here is with spring wiring connector for fast fixing for cable, just press the connector cover, then insert cable inside of the wiring hole, then is ok. Save time and Safety.



- Pressure clamp connectors
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

#### Technical Data

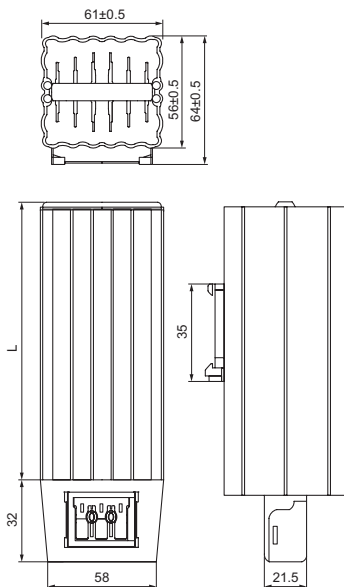
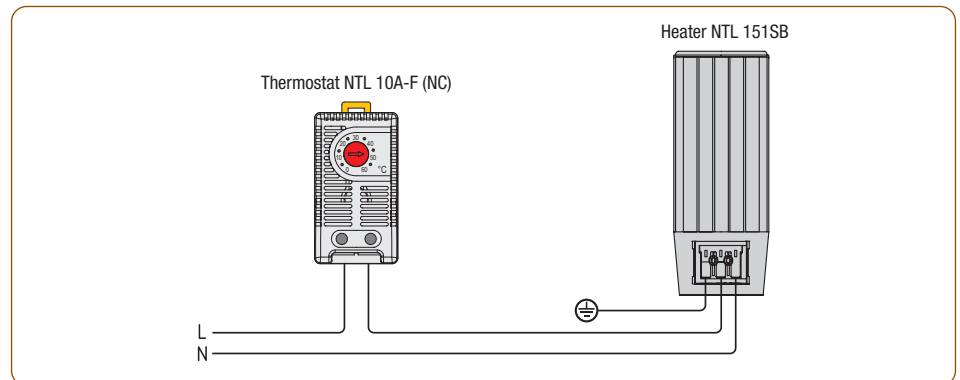
CE RoHS ISO9001 Patent

#### NTL 151SB

Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110 V, max. 265 V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure clamps for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

#### Example of connection



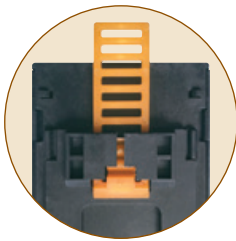
Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
151SB015	15W	65mm	0.25kg
151SB030	30W	65mm	0.25kg
151SB045	45W	65mm	0.25kg
151SB050	50W	80mm	0.35kg
151SB060	60W	140mm	0.35kg
151SB075	75W	140mm	0.45kg
151SB100	100W	140mm	0.45kg
151SB150	150W	220mm	0.65kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 152 | 50W to 150W



Fast Fixing Part



- Low surface temperature
- Quick mounting due to clip fixing
- Double insulated (plastic)
- Wide voltage range
- Small size

Touch-safe heater for the use in enclosures with electrical/electronic components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater design. Our complete range of thermostats and hygrometers can directly be connected to the heater NTL 152. This heater is also available in a version with plug-in thermostat requiring no additional wiring. The heaters are designed for permanent operation.

### Technical Data

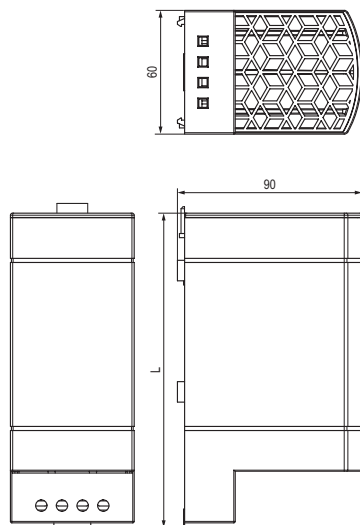
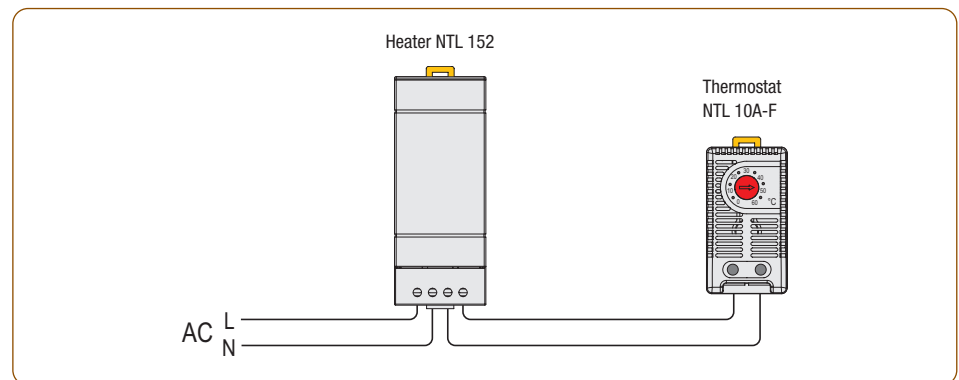
CE RoHS ISO9001 Patent

#### NTL 152

Operating voltage	120-260V AC/DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +80°C (+176°F), except upper protective grille
Connection	4-pole terminal 2.5mm <sup>2</sup> , torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### Examples of connection



Art. No.	Heating capacity <sup>2</sup>	Air outlet temperature <sup>3</sup>	Dimensions	Weight (approx.)
152050	50W	+86°C (+186.8°F)	110×60×90mm	0.3kg
152100	100W	+120°C (+248°F)	150×60×90mm	0.4kg
152150	150W	+145°C (+293°F)	150×60×90mm	0.4kg

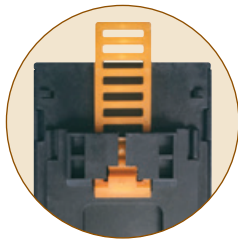
<sup>2</sup> ambient temperature - see Heating capacity / Ambient temperature diagram;

<sup>3</sup> measured 50mm above protective grille

### NTL 152-T | 50W to 150W



Fast Fixing Part



- Low surface temperature
- Quick mounting due to clip fixing
- Double insulated (plastic)
- Wide voltage range
- Small size

Touch-safe heater for the use in enclosures with electrical/electronic components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater design. Our complete range of thermostats and hygrostats can directly be connected to the heater NTL 152-T. This heater is also available in a version with plug-in thermostat requiring no additional wiring. The heaters are designed for permanent operation.

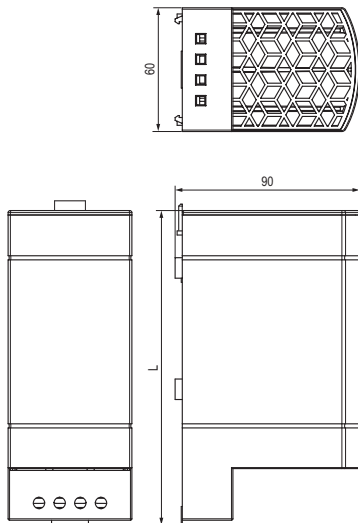
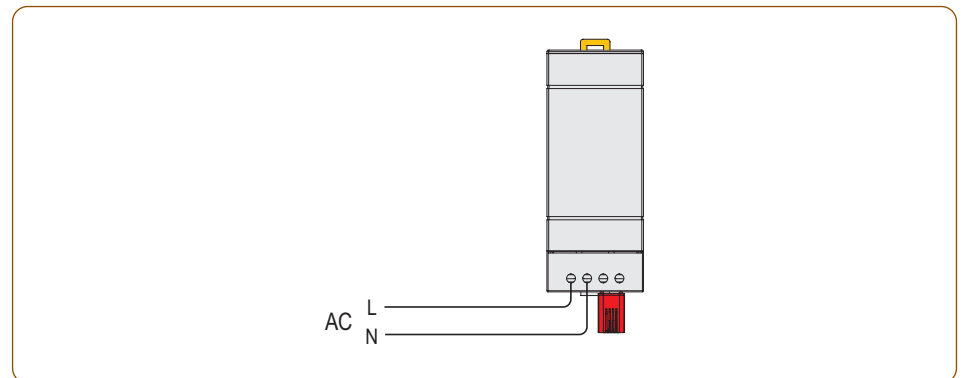
### Technical Data

CE RoHS ISO9001 Patent

NTL 152-T	
Operating voltage	120-260V AC/DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +80°C (+176°F), except upper protective grille
Connection	4-pole terminal 2.5mm <sup>2</sup> , torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### Examples of connection



Art. No.	Heating capacity <sup>2</sup>	Switch-off temperature	Switch-off temperature	Dimensions	Weight (approx.)
152050T1	50W	59°F (15°C)	41°F (5°C)	110×60×90mm	0.3kg
152050T2	50W	77°F (25°C)	59°F (15°C)	150×60×90mm	0.4kg
152100T1	100W	59°F (15°C)	41°F (5°C)	150×60×90mm	0.4kg
152100T2	100W	77°F (25°C)	59°F (15°C)	110×60×90mm	0.3kg
152150T1	150W	59°F (15°C)	41°F (5°C)	150×60×90mm	0.4kg
152150T2	150W	77°F (25°C)	59°F (15°C)	150×60×90mm	0.4kg

<sup>2</sup> ambient temperature - see Heating capacity / Ambient temperature diagram;

### NTL 152D | 50W to 150W



- Low surface temperature
- Quick mounting due to clip fixing
- Double insulated (plastic)
- Wide voltage range
- Small size

Touch-safe heater for the use in enclosures with electrical/electronic components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater design. Our complete range of thermostats and hygrometers can directly be connected to the heater NTL 152D. This heater is also available in a version with plug-in thermostat requiring no additional wiring. The heaters are designed for permanent operation.

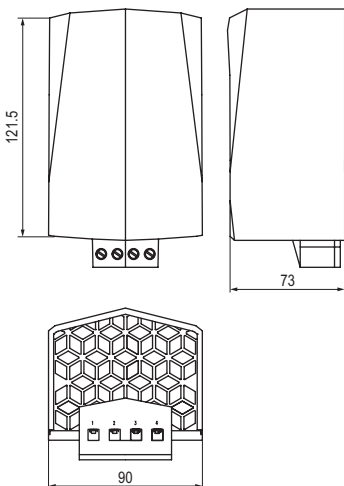
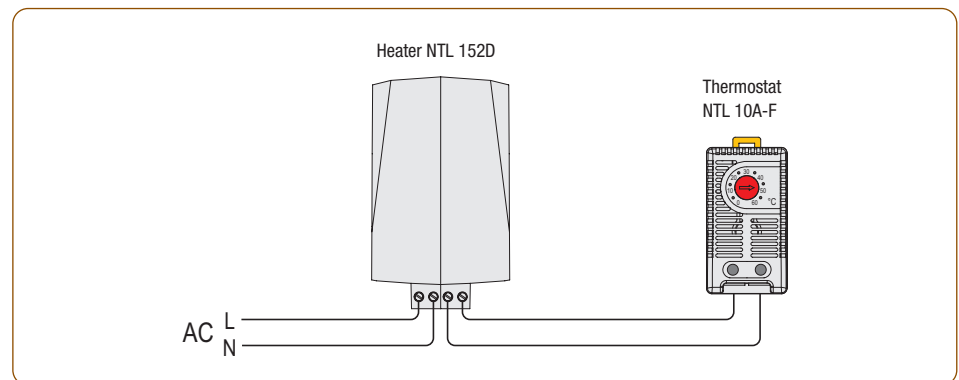
### Technical Data

CE RoHS ISO9001 Patent

NTL 152D	
Operating voltage	120-260V AC/DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +80°C (+176°F), except upper protective grille
Connection	4-pole terminal 2.5mm <sup>2</sup> , torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### Examples of connection



Art. No.	Heating capacity <sup>2</sup>	Air outlet temperature <sup>3</sup>	Dimensions	Weight (approx.)
152D050	50W	+86°C (+186.8°F)	147×73×90mm	0.4kg
152D100	100W	+120°C (+248°F)	147×73×90mm	0.4kg
152D150	150W	+145°C (+293°F)	147×73×90mm	0.4kg

<sup>2</sup> ambient temperature - see Heating capacity / Ambient temperature diagram;

<sup>3</sup> measured 50mm above protective grille

### NTL 152D-T | 50W to 150W



- Low surface temperature
- Quick mounting due to clip fixing
- Double insulated (plastic)
- Wide voltage range
- Small size

Touch-safe heater for the use in enclosures with electrical/electronic components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater design. Our complete range of thermostats and hygrostats can directly be connected to the heater NTL 152D-T. This heater is also available in a version with plug-in thermostat requiring no additional wiring. The heaters are designed for permanent operation.

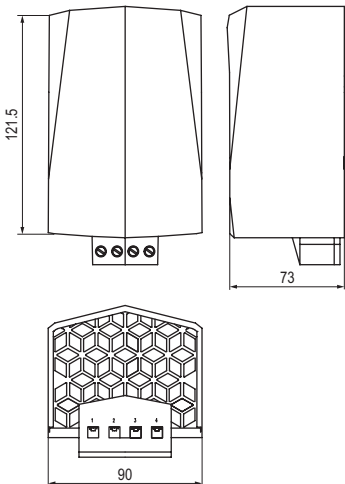
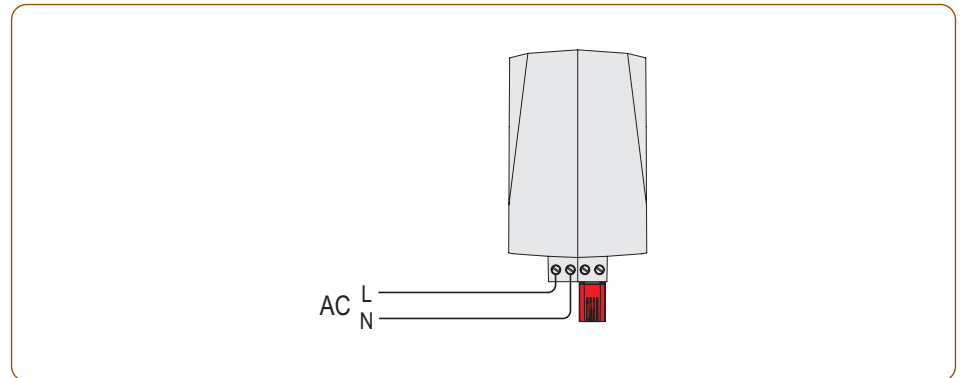
#### Technical Data

CE RoHS ISO9001 Patent

NTL 152D-T	
Operating voltage	120-260V AC/DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +80°C (+176°F), except upper protective grille
Connection	4-pole terminal 2.5mm <sup>2</sup> , torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

#### Examples of connection



Art. No.	Heating capacity <sup>2</sup>	Switch-off temperature	Switch-off temperature	Dimensions	Weight (approx.)
152D050T1	50W	59°F (15°C)	41°F (5°C)	110×60×90mm	0.3kg
152D050T2	50W	77°F (25°C)	59°F (15°C)	150×60×90mm	0.4kg
152D100T1	100W	59°F (15°C)	41°F (5°C)	150×60×90mm	0.3kg
152D100T2	100W	77°F (25°C)	59°F (15°C)	110×60×90mm	0.4kg
152D150T1	150W	59°F (15°C)	41°F (5°C)	150×60×90mm	0.3kg
152D150T2	150W	77°F (25°C)	59°F (15°C)	150×60×90mm	0.4kg

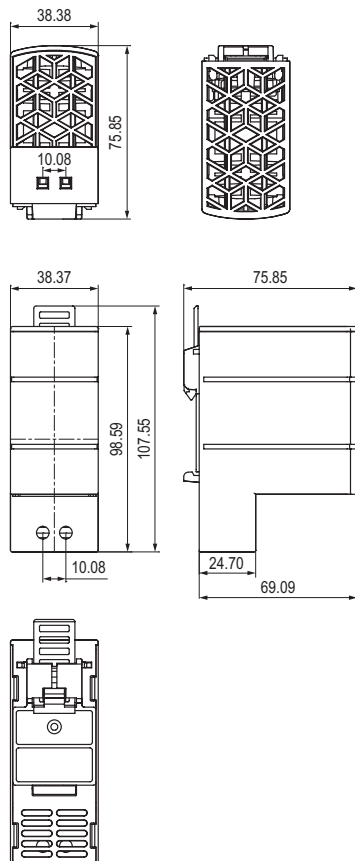
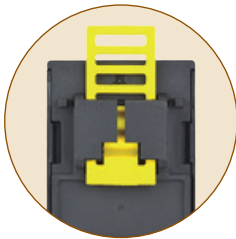
<sup>2</sup> ambient temperature - see Heating capacity / Ambient temperature diagram;



**NTL 153 | 10W, 20W, 30W**



Fast Fixing Part



- Low surface temperature
- Double insulated (plastic housing)
- Wide voltage range
- Dynamic heating up
- Clip fixing

The heaters are used in enclosures where condensation is to be prevented or the temperature may not fall below a minimum value. In this way corrosion is avoided and an even temperature is ensured. The heaters are designed for permanent operation.

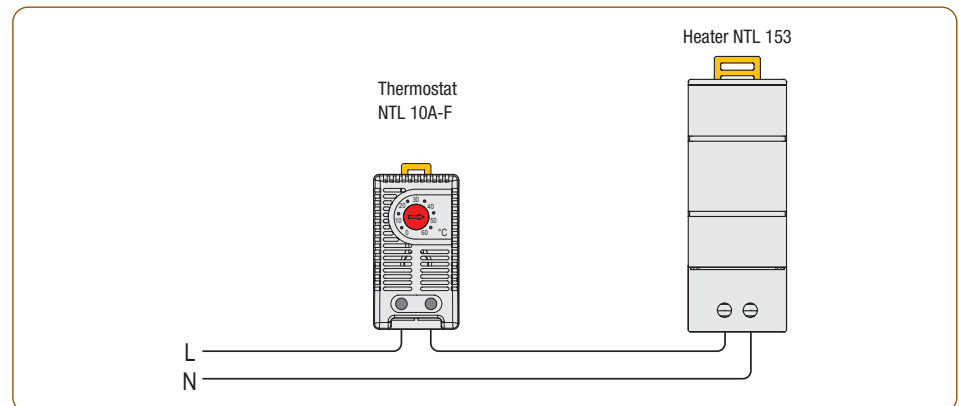
### Technical Data

CE RoHS ISO9001 Patent

NTL 153	
Operating voltage	120-260V AC/DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +85°C (+185°F) (according to VDE 0100), except upper protective grille
Connection	2-pole terminal 2.5mm <sup>2</sup> , torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45°C to +70°C (-49°F to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx 10%.

### Examples of connection



Art. No.	Heating capacity <sup>2</sup>	Dimensions	Weight (approx.)
153010	10W	96×38×79mm	0.2kg
153020	20W	96×38×79mm	0.3kg
153030	30W	96×38×79mm	0.3kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 154 | 15W to 150W



Slide up and down fixing part



- Pressure clamp connectors
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

### Technical Data

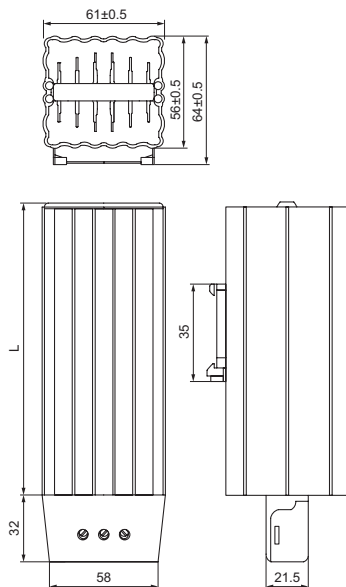
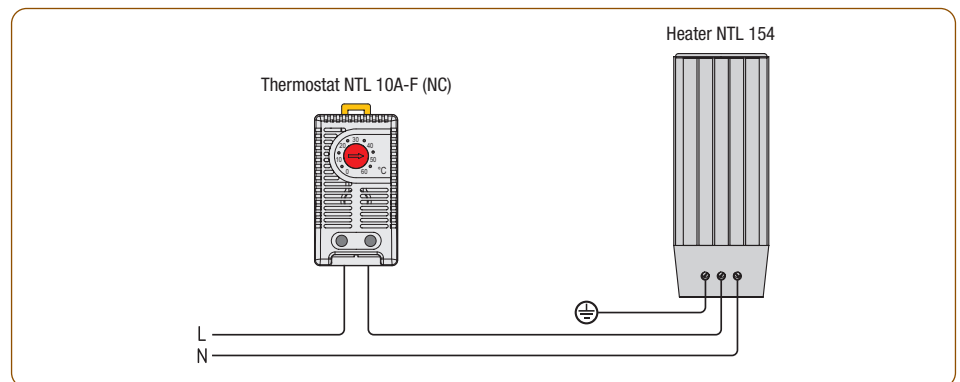
CE RoHS ISO9001 Patent

#### NTL 154

Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110 V, max. 265 V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure clamps for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5- 2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
154015	15W	65mm	0.25kg
154030	30W	65mm	0.25kg
154045	45W	65mm	0.25kg
154050	50W	80mm	0.35kg
154060	60W	140mm	0.35kg
154075	75W	140mm	0.45kg
154100	100W	140mm	0.45kg
154150	150W	220mm	0.65kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 154S | 15W to 150W



Here is with spring wiring connector for fast fixing for cable, just press the connector cover, then insert cable inside of the wiring hole, then is ok. Save time and Satefy.

Slide up and down fixing part



- Pressure clamp connectors
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamb connectors save time and simplify installation.

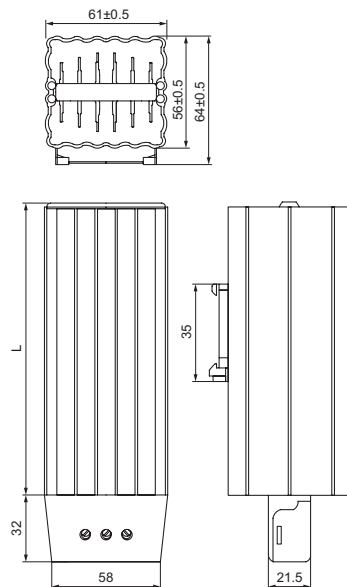
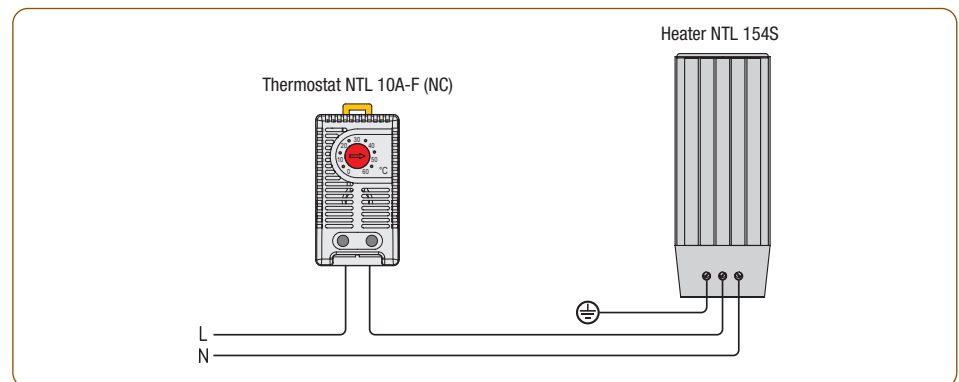
CE RoHS ISO9001 Patent

### Technical Data

NTL 154S	
Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110 V, max. 265 V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure clamps for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing
Note	other voltagess on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
154S015	15W	65mm	0.25kg
154S030	30W	65mm	0.25kg
154S045	45W	65mm	0.25kg
154S050	50W	80mm	0.35kg
154S060	60W	140mm	0.35kg
154S075	75W	140mm	0.45kg
154S100	100W	140mm	0.45kg
154S150	150W	220mm	0.65kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 155 | 10W to 30W



- Dynamic heating up
- Energy saving
- Wide voltage range
- Clip fixing

The heaters are used in enclosures where condensation is to be prevented or the temperature may not fall below a minimum value. In this way corrosion is avoided and an even temperature is ensured. The heaters are designed for permanent operation.

#### Technical Data

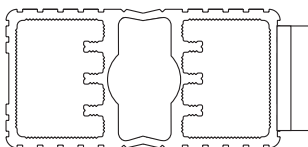
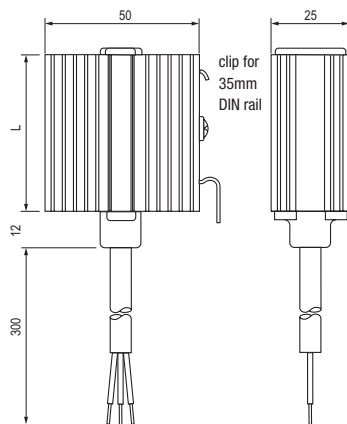
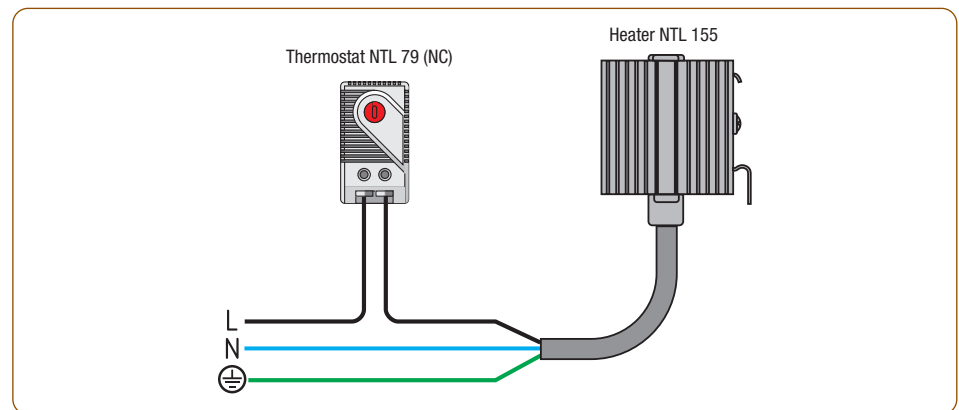
CE RoHS ISO9001 Patent

#### NTL 155

Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP44 / I (earthed)
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

#### Example of connection



Art. No.	Operating voltage	Heating capacity <sup>1</sup>	Connection	Length (L)	Weight (approx.)
155010	120-240V AC/DC <sup>2</sup>	10W	3×0.5mm <sup>2</sup> ×300mm cable (silicone)	52mm	0.1kg
155020	120-240V AC/DC <sup>2</sup>	20W	3×0.5mm <sup>2</sup> ×300mm cable (silicone)	60mm	0.2kg
155030	120-240V AC/DC <sup>2</sup>	30W	3×0.5mm <sup>2</sup> ×300mm cable (silicone)	70mm	0.2kg

<sup>1</sup> at +20°C (+68°F) ambient temperature,

<sup>2</sup> (min. 110V, max 265V) Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### NTL 201E | 15W to 200W



- Pressure spring connector for wiring, fast and safe wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

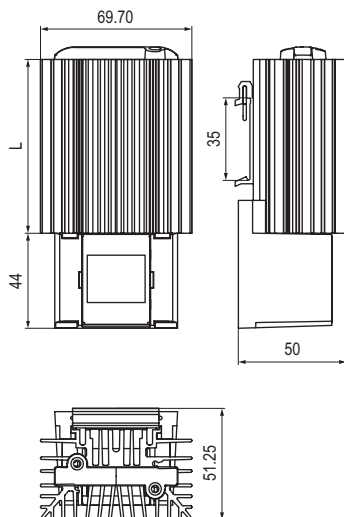
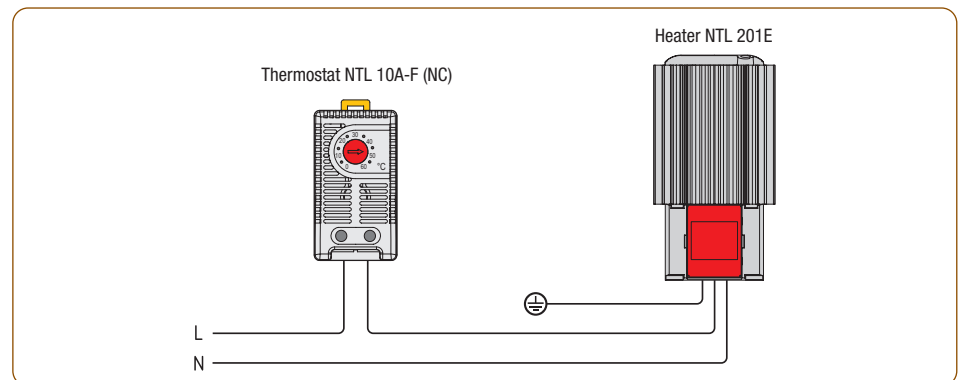
#### Technical Data

CE RoHS ISO9001 Patent

NTL 201E	
Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure spring connector for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

#### Example of connection

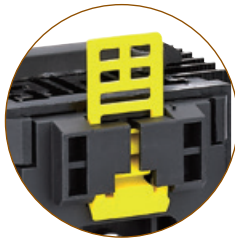


Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
201E015	15W	65mm	0.260kg
201E030	30W	65mm	0.260kg
201E045	45W	65mm	0.260kg
201E060	60W	65mm	0.260kg
201E075	75W	65mm	0.260kg
201E100	100W	88mm	0.332kg
201E150	150W	100mm	0.369kg
201E200	200W	150mm	0.515kg

<sup>2</sup> at +20°C (+68°F) ambient temperature



### NTL 201E-F | 15W to 200W



- Pressure Spring Connector for wiring, fast and safe wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- With fast fixing part, easy to fix onto DIN rail and easy to remove from DIN rail

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamb connectors save time and simplify installation.

#### Technical Data

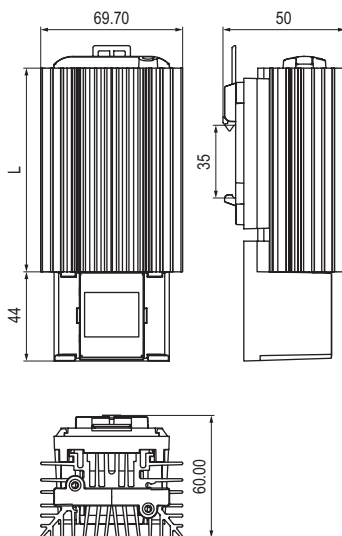
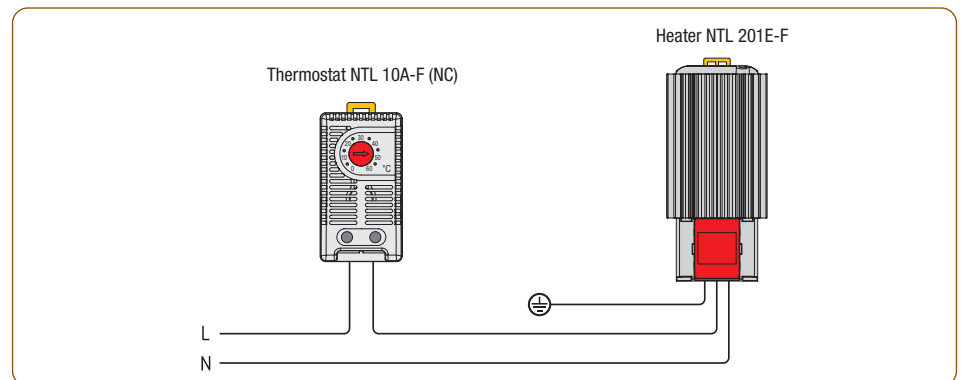
CE RoHS ISO9001 Patent

#### NTL 201E-F

Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure spring connector for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

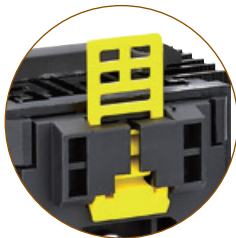
#### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
201EF015	15W	65mm	0.260kg
201EF030	30W	65mm	0.260kg
201EF045	45W	65mm	0.260kg
201EF060	60W	65mm	0.260kg
201EF075	75W	65mm	0.260kg
201EF100	100W	88mm	0.332kg
201EF150	150W	100mm	0.369kg
201EF200	200W	150mm	0.515kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 201-F | 15W to 200W



- Screw wiring connector
- Dynamic heating up
- Wide voltage range
- Energy saving
- With fast fixing part, easy to fix onto DIN rail and easy to remove from DIN rail

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

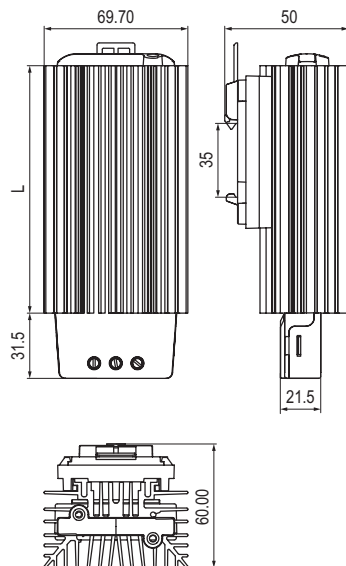
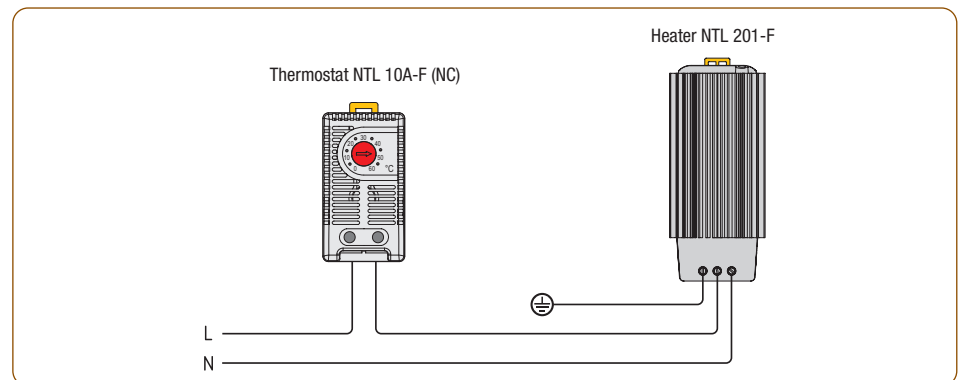
#### Technical Data

CE RoHS ISO9001 Patent

NTL 201-F	
Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	screw wiring connector for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

#### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
201F015	15W	65mm	0.277kg
201F030	30W	65mm	0.277kg
201F045	45W	65mm	0.277kg
201F060	60W	65mm	0.277kg
201F075	75W	65mm	0.277kg
201F100	100W	88mm	0.350kg
201F150	150W	100mm	0.386kg
201F200	200W	150mm	0.530kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 201S-F | 15W to 200W



- Pressure clamp connectors
- Dynamic heating up
- Wide voltage range
- Energy saving
- With fast fixing part, easy to fix onto DIN rail and easy to remove from DIN rail

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

#### Technical Data

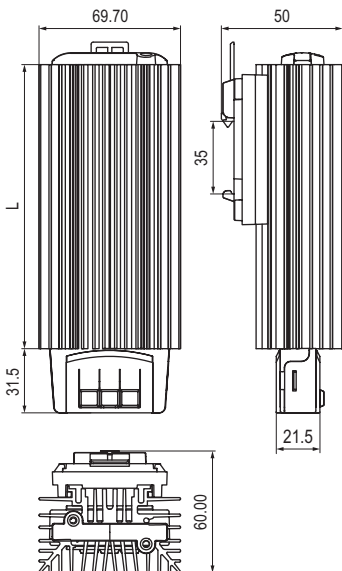
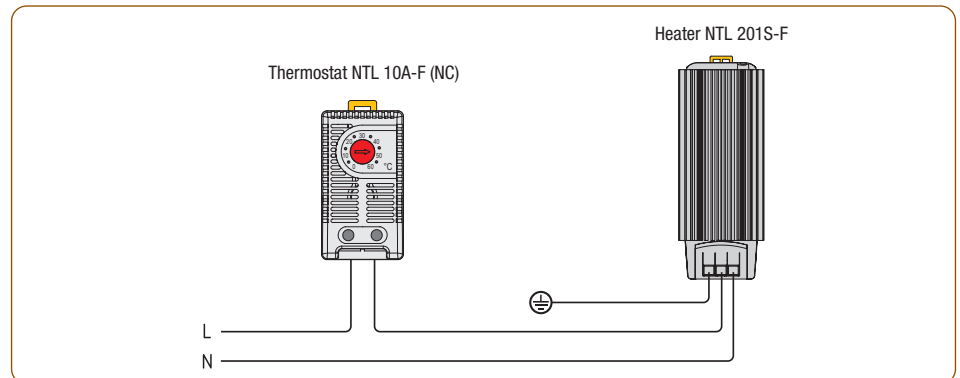
CE RoHS ISO9001 Patent

#### NTL 201S-F

Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure clamps for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

#### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
201SF015	15W	65mm	0.277kg
201SF030	30W	65mm	0.277kg
201SF045	45W	65mm	0.277kg
201SF060	60W	65mm	0.277kg
201SF075	75W	65mm	0.277kg
201SF100	100W	88mm	0.350kg
201SF150	150W	100mm	0.386kg
201SF200	200W	150mm	0.530kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 201SB-F | 15W to 200W



- Pressure spring connector for wiring, fast and safe wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- With fast fixing part, easy to fix onto DIN rail and easy to remove from DIN rail

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

#### Technical Data

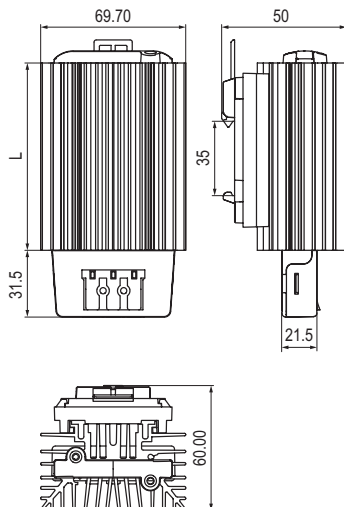
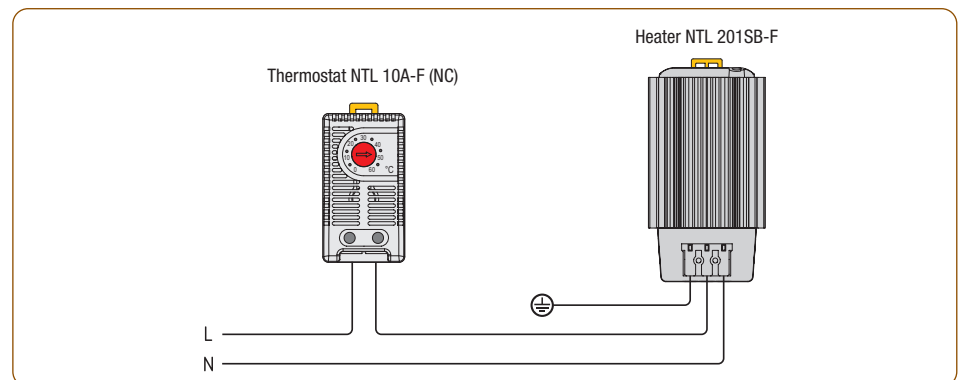
CE RoHS ISO9001 Patent

#### NTL 201SB-F

Operating voltage	120-260V AC/DC or 12V DC or 24V DC or 48V DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure spring connector for stranded wire 0.5-1.5mm <sup>2</sup> (with wire end ferrule) and rigid wire 0.5-2.5mm <sup>2</sup>
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

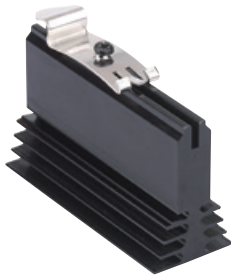
#### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Length (L)	Weight (approx.)
201SBF015	15W	65mm	0.277kg
201SBF030	30W	65mm	0.277kg
201SBF045	45W	65mm	0.277kg
201SBF060	60W	65mm	0.277kg
201SBF075	75W	65mm	0.277kg
201SBF100	100W	88mm	0.350kg
201SBF150	150W	100mm	0.386kg
201SBF200	200W	150mm	0.530kg

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 030 | 10W to 30W



- **Dynamic heating up**
- **Energy saving**
- **Wide voltage range**

The NTL 030 Mini series of radiant heaters consists of three versions with heating performance ratings of 10, 20 and 30 Watts.

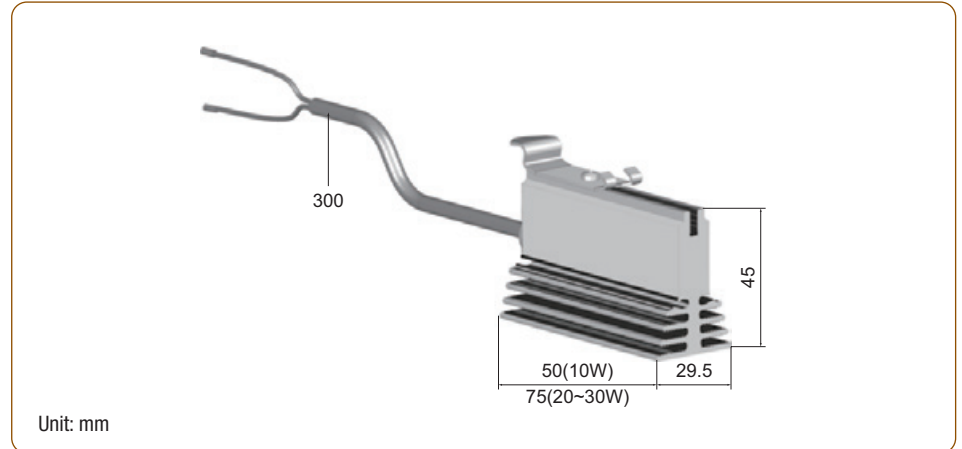
The new mini-heaters are particularly suitable for use in small housings or for the heating of isolated spots in sensitive areas.

#### Technical Data

CE RoHS ISO9001 Patent

NTL 030	
Rated voltage	120-260V AC/DC
Functional range	120-260V AC/DC 50/60Hz
Duty cycle	100%
Operating temperature range	-40°C ... +70°C (- 40°F ... + 158°F)
Storage temperature range	-40°C ... +70°C (- 40°F ... + 158°F)
Installation orientation	as desired, preferably vertical
Device construction	aluminium profile, black anodised
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715
Protection class	II
Type of connection	connecting cable (300 mm)
Protection type/Protection class	IP54

#### Dimensions



Art. No.	Power consumption	Starting current	Max. surface temperature	Weight (approx.)
030010	10W	1.0A	95°C	85g
030020	20W	1.1A	115°C	120g
030030	30W	1.2A	140°C	120g

RCE 016 | 5 W, 9 W



- Wide voltage range
- Dynamic heating up
- Energy saving
- Compact

Small heaters designed to prevent condensation and to ensure a minimum operating temperature in small enclosures. The heaters are designed for permanent operation.

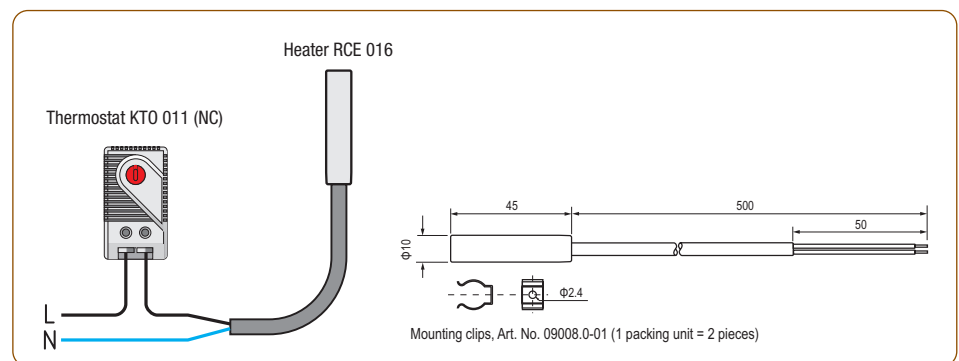
### Technical Data

CE RoHS ISO9001 Patent

RCE 016	
Operating voltage	120-240V AC/DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor, temperature limiting
Heater body	aluminium
Mounting	see accessories
Fitting position	variable
Dimensions	length 45mm, Ø10mm
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / II (double insulated)
Accessories	mounting clips (see illustration), Art. No. 09008.0-01
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Connection	Weight (approx.)
01622.0-00	5W	2×AWG 24 cable (silicone)	20g
01623.0-00	9W	2×AWG 24 cable (silicone)	20g

<sup>2</sup> at +20°C (+68°F) ambient temperature



**RC 016** | 8W, 10W, 13W



- Wide voltage range
- Dynamic heating up
- Energy saving
- Compact

These small heaters are designed to prevent condensation and to ensure a minimum operating temperature in small enclosures. The heaters are designed for permanent operation.

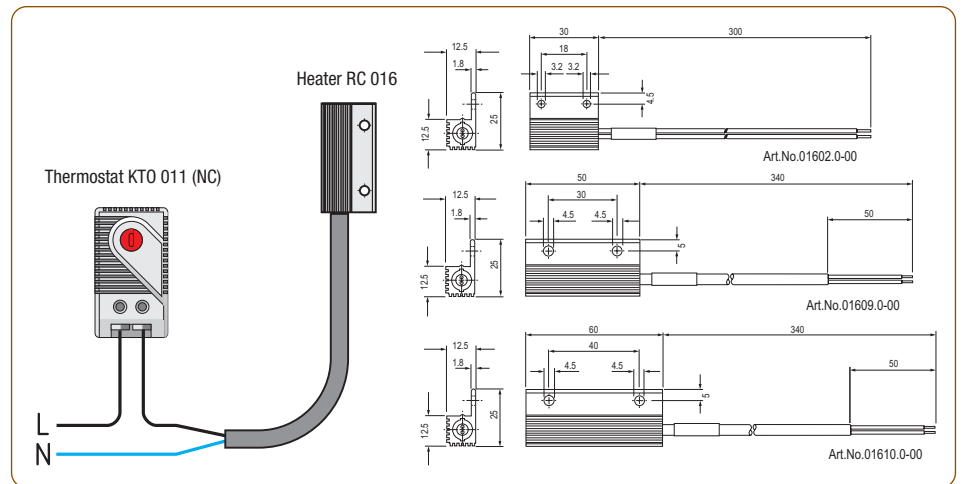
### Technical Data

CE RoHS ISO9001 Patent

RC 016	
Operating voltage	120-240V AC/DC <sup>1</sup> (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	aluminium, anodised
Mounting	screw fixing
Fitting position	variable
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / II (double insulated)
Note	other voltages on request

<sup>1</sup> Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

### Example of connection



Art. No.	Heating capacity <sup>2</sup>	Connection	Weight (approx.)
01602.0-00	8W	2×AWG 24 cable (silicone)	20g
01609.0-00	10W	2×AWG 24 cable (silicone)	30g
01610.0-00	13W	2×AWG 24 cable (silicone)	40g

<sup>2</sup> at +20°C (+68°F) ambient temperature

### NTL 401S | 150W to 400W



Here is with spring wiring connector for fast fixing for cable, just press the connector cover, then insert cable inside of the wiring hole, then is ok. Save time and Satefy.



- Pressure spring connectors, easy and safe for wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamb connectors save time and simplify installation.

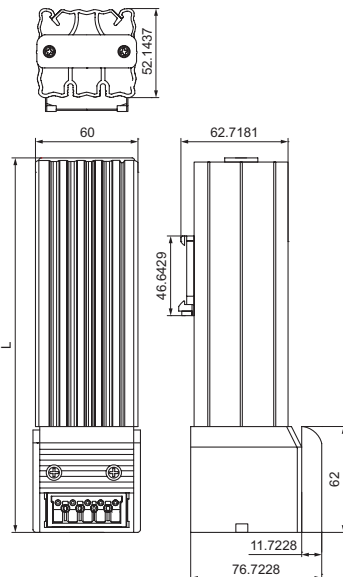
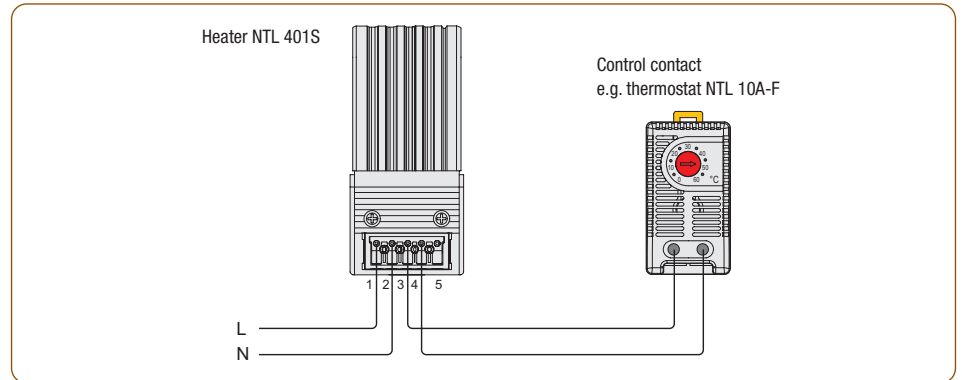
#### Technical Data

CE RoHS ISO9001 Patent

#### NTL 401S

Operating voltage	230VAC or 120VAC
Heating element	PTC resistor-temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	anodised extruded aluminium profile
Surface temperature	max. +75°C
Axial fan, ball bearing	airflow, free flow 45m³/h (50Hz) or 54m³/h (60Hz) service life 50,000h at +25°C (+77°F)
Connection	internal connection terminal 1.5mm² with strain relief, clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Note	other voltages on request

#### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Length (L)	Weight (approx.)
401S150.0	150W	230VAC, 50/60Hz	182mm	0.8kg
401S250.0	250W	230VAC, 50/60Hz	182mm	0.8kg
401S300.0	300W	230VAC, 50/60Hz	222mm	1.2kg
401S400.0	400W	230VAC, 50/60Hz	222mm	1.2kg
401S150.9	150W	120VAC, 50/60Hz	182mm	0.8kg
401S250.9	250W	120VAC, 50/60Hz	182mm	0.8kg
401S300.9	300W	120VAC, 50/60Hz	222mm	1.2kg
401S400.9	400W	120VAC, 50/60Hz	222mm	1.2kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 402S | 150W to 400W



Here is with spring wiring connector for fast fixing for cable, just press the connector cover, then insert cable inside of the wiring hole, then is ok. Save time and Safety.



Can be adjusted UP and DOWN

- Pressure spring connectors, easy and safe for wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

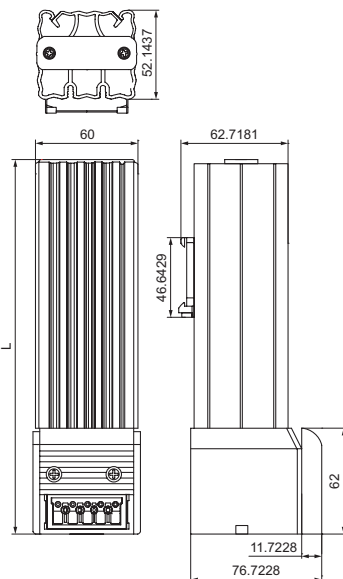
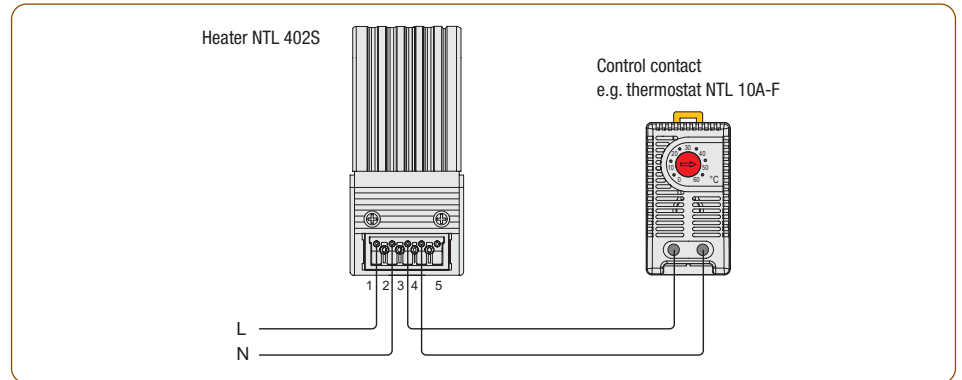
These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

### Technical Data

CE RoHS ISO9001 Patent

NTL 402S	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor-temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	anodised extruded aluminium profile
Surface temperature	max. +75°C
Axial fan, ball bearing	airflow, free flow 45m³/h (50Hz) or 54m³/h (60Hz) service life 50,000h at +25°C (+77°F)
Connection	spring connectors 1.5mm² with strain relief, clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Length (L)	Weight (approx.)
402S150.0	150W	230VAC, 50/60Hz	182mm	0.8kg
402S250.0	250W	230VAC, 50/60Hz	182mm	0.8kg
402S300.0	300W	230VAC, 50/60Hz	222mm	1.2kg
402S400.0	400W	230VAC, 50/60Hz	222mm	1.2kg
402S150.9	150W	120VAC, 50/60Hz	182mm	0.8kg
402S250.9	250W	120VAC, 50/60Hz	182mm	0.8kg
402S300.9	300W	120VAC, 50/60Hz	222mm	1.2kg
402S400.9	400W	120VAC, 50/60Hz	222mm	1.2kg

### NTL 403 | 150W to 400W



Patent Number: ZL 2018 3 0415861.5



- Small, compact design
- Quiet in operation
- Dynamic heating up
- With fast fixing part, easy to fix onto DIN rail and easy to remove from DIN rail

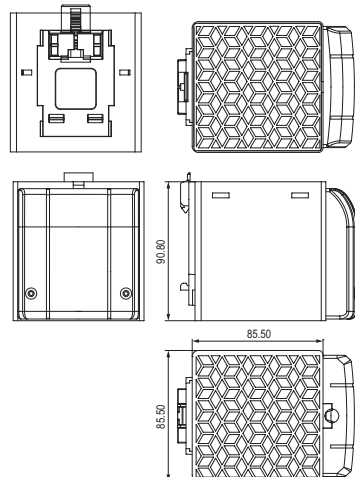
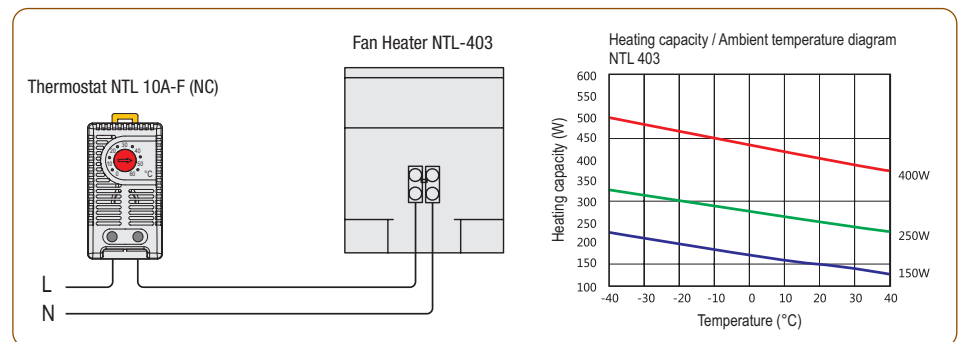
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 403 makes it ideal for use in enclosures where space is at a premium.

### Technical Data

CE RoHS ISO9001 Patent

NTL 403	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	150W/250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø 5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Examples of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
403150.0	150W	230VAC, 50/60Hz	75×65×90mm	0.3kg
403250.0	250W	230VAC, 50/60Hz	90×85×111mm	0.5kg
403300.0	300W	230VAC, 50/60Hz	90×85×111mm	0.5kg
403400.0	400W	230VAC, 50/60Hz	90×85×111mm	0.5kg
403150.9	150W	120VAC, 50/60Hz	75×65×90mm	0.3kg
403250.9	250W	120VAC, 50/60Hz	90×85×111mm	0.5kg
403300.9	300W	120VAC, 50/60Hz	90×85×111mm	0.5kg
403400.9	400W	120VAC, 50/60Hz	90×85×111mm	0.5kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 405 | 100W to 400W



- Compact
- Flat design
- High air through-flow
- Temperature safety cut-out
- Clip fixing

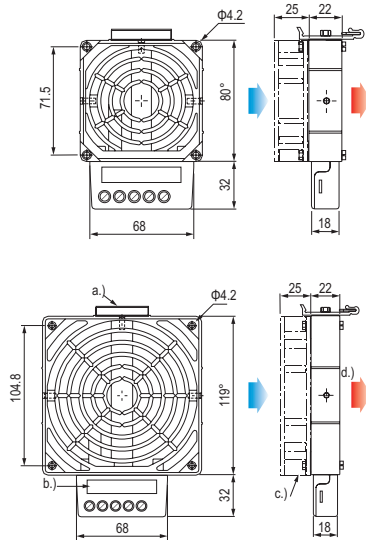
Compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. This fan heater may only be operated together with a fan but is also available without fan for self-assembly (NTL 405) and with pre-configured fan (NTL 406).

### Technical Data

CE RoHS ISO9001 Patent

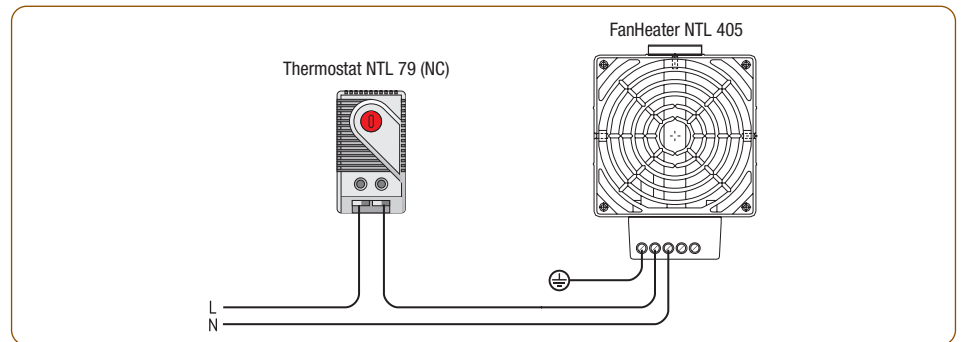
#### NTL 405

Operating voltage	230VAC or 120VAC
Heating element	high performance cartridge
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	die-cast aluminium (glass bead blasted)
Connection	3-pole screw connector 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)



a.) Clip b.) Type plate c.) Axial fan  
d.) Air direction

### Examples of connection



Art. No. (230VAC)	Art. No. (120VAC)	Heating capacity	Dimensions	Weight (approx.)
405100.0	405100.9	100W	80×112×22mm	0.4kg
405150.0	405150.9	150W	80×112×22mm	0.4kg
405200.0	405200.9	200W	119×151×22mm	0.5kg
405300.0	405300.9	300W	119×151×22mm	0.5kg
405400.0	405400.9	400W	119×151×22mm	0.5kg

### NTL 406 | 100W to 400W



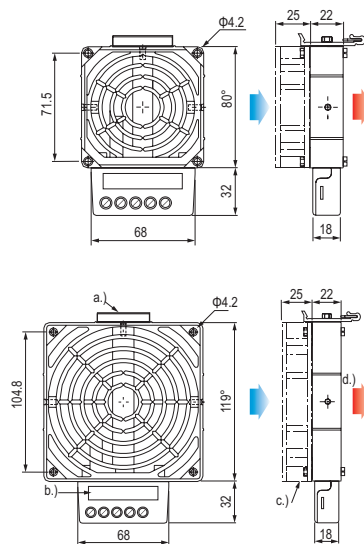
- Compact
- Flat design
- High air through-flow
- Temperature safety cut-out
- Clip fixing

Compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. This fan heater may only be operated together with a fan but is also available without fan for self-assembly (NTL 405) and with pre-configured fan (NTL 406).

### Technical Data

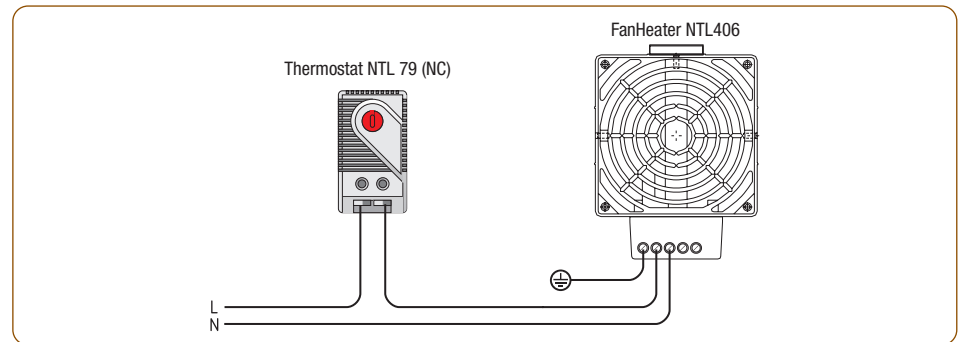
CE RoHS ISO9001 Patent

NTL 406	
Operating voltage	230VAC or 120VAC
Heating element	high performance cartridge
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	die-cast aluminium (glass bead blasted)
Connection	3-pole screw connector 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Axial fan, ball bearing	airflow see table, service life 50,000h at +25°C (+77°F)
Connection (axial fan)	2-pole screw connector 2.5mm <sup>2</sup> (L2/N2)
Protection type/Protection class	IP20 / I (earthed)



a.) Clip b.) Type plate c.) Axial fan  
d.) Air direction

### Examples of connection



Art. No. (230VAC)	Art. No. (120VAC)	Heating capacity	Dimensions	Weight (approx.)
406100.0	406100.9	100W	80×112×22mm	0.6kg
406150.0	406150.9	150W	80×112×22mm	0.6kg
406200.0	406200.9	200W	119×151×22mm	0.9kg
406300.0	406300.9	300W	119×151×22mm	0.9kg
406400.0	406400.9	400W	119×151×22mm	0.9kg



### NTL 406-M | 100W to 400W



- Compact
- Flat design
- High air through-flow
- Temperature safety cut-out
- Screw fixing

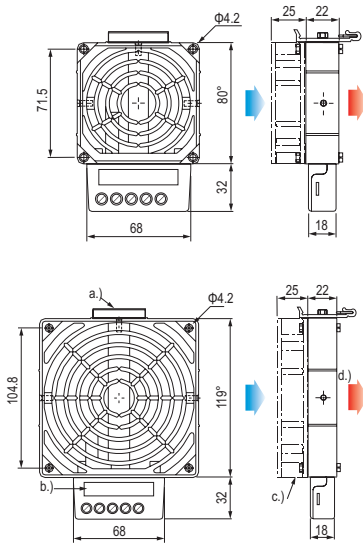
Compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. This fan heater may only be operated together with a fan but is also available without fan for self-assembly (NTL 405) and with pre-configured fan (NTL 406).

### Technical Data

CE RoHS ISO9001 Patent

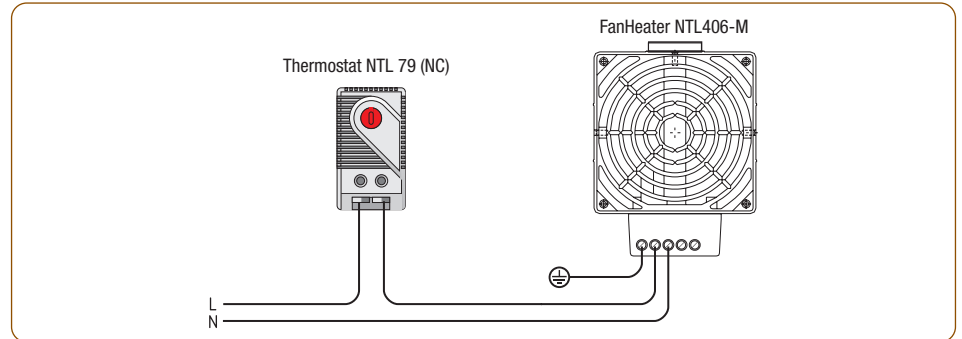
#### NTL 406-M

Operating voltage	230VAC or 120VAC
Heating element	high performance cartridge
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	die-cast aluminium (glass bead blasted)
Connection	3-pole screw connector 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	screw fixing
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Axial fan, ball bearing	airflow see table, service life 50,000h at +25°C (+77°F)
Connection (axial fan)	2-pole screw connector 2.5mm <sup>2</sup> (L2/N2)
Protection type/Protection class	IP20 / I (earthed)



a.) Clip b.) Type plate c.) Axial fan  
d.) Air direction

### Examples of connection

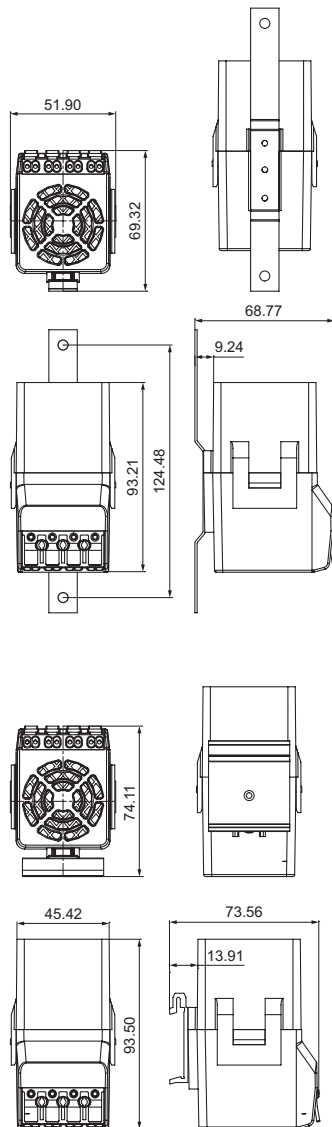


Art. No. (230VAC)	Art. No. (120VAC)	Heating capacity	Dimensions	Weight (approx.)
406M100.0	406M100.9	100W	80×112×22mm	0.6kg
406M150.0	406M150.9	150W	80×112×22mm	0.6kg
406M200.0	406M200.9	200W	119×151×22mm	0.9kg
406M300.0	406M300.9	300W	119×151×22mm	0.9kg
406M400.0	406M400.9	400W	119×151×22mm	0.9kg

### NTL 407-S | 150W to 350W



Here is with spring wiring connector for fast fixing for cable, just press the connector cover, then insert cable inside of the wiring hole, then is ok. Save time and Safety.



- Pressure spring connectors for fast wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- Screw fixing, Quick installation

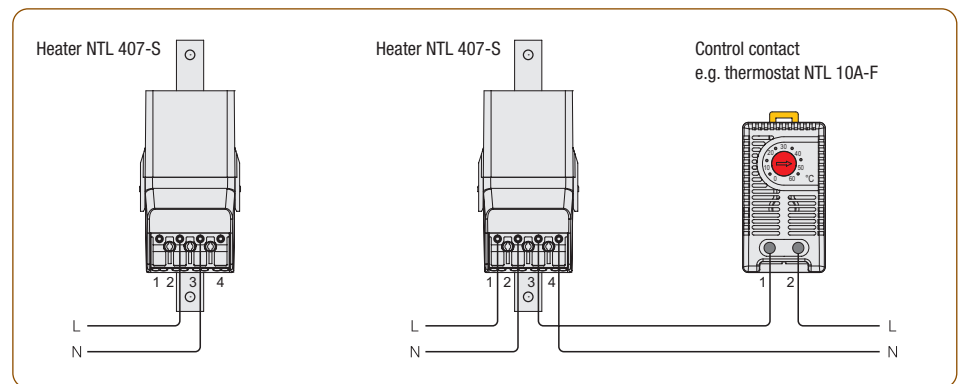
These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamb connectors save time and simplify installation.

#### Technical Data

CE ROHS ISO9001 Patent

NTL 407-S	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	150W/250W: max. +50°C (+122°F), 350W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

#### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
407S150.0	150W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407S200.0	200W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407S300.0	300W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407S350.0	350W	230VAC, 50/60Hz	94×70×52mm	0.3kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 407-D | 150W to 350W



Here is with spring wiring connector for fast fixing for cable, just press the connector cover, then insert cable inside of the wiring hole, then is ok. Save time and Safety.



- Pressure spring connectors for fast wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamb connectors save time and simplify installation.

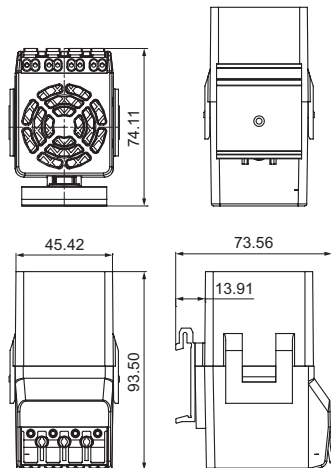
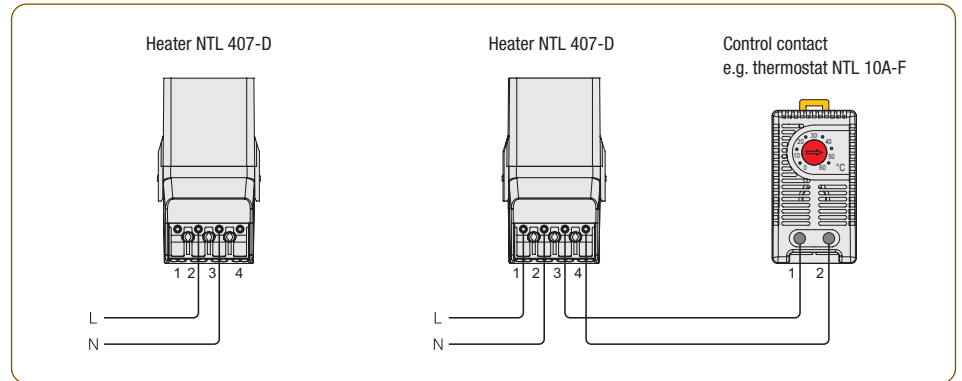
### Technical Data

CE RoHS ISO9001 Patent

#### NTL 407-D

Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	150W/250W: max. +50°C (+122°F), 350W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
407D150.0	150W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407D200.0	200W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407D300.0	300W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407D350.0	350W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407D150.9	150W	120VAC, 50/60Hz	94×70×52mm	0.3kg
407D200.9	200W	120VAC, 50/60Hz	94×70×52mm	0.3kg
407D300.9	300W	120VAC, 50/60Hz	94×70×52mm	0.3kg
407D350.9	350W	120VAC, 50/60Hz	94×70×52mm	0.3kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 407-D-T | 150W to 350W



Here is with spring wiring connector for fast fixing for cable, just press the connector cover, then insert cable inside of the wiring hole, then is ok. Save time and Safety.



- Pressure spring connectors for fast wiring
- Dynamic heating up
- Wide voltage range
- Energy saving
- Clip fixing, Quick installation

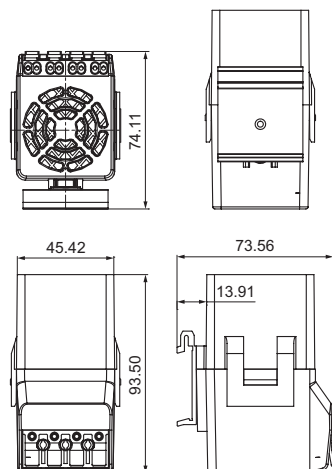
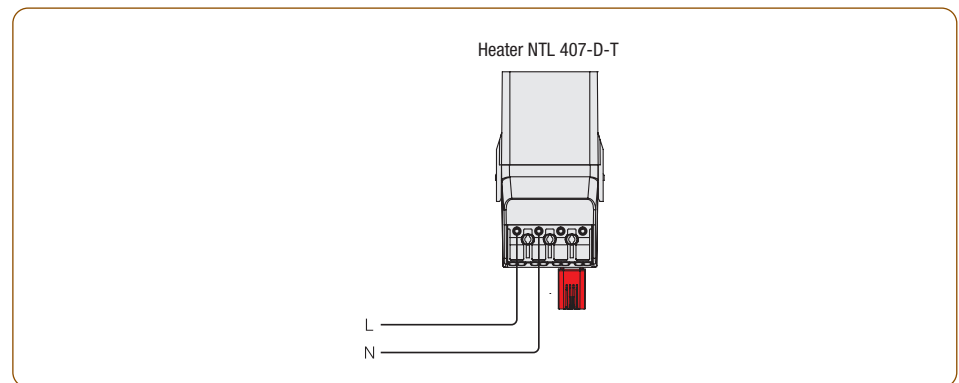
These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamp connectors save time and simplify installation.

### Technical Data

CE ROHS ISO9001 Patent

NTL 407-D-T	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	150W/250W: max. +50°C (+122°F), 350W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
407DT150.0	150W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407DT200.0	200W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407DT300.0	300W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407DT350.0	350W	230VAC, 50/60Hz	94×70×52mm	0.3kg
407DT150.9	150W	120VAC, 50/60Hz	94×70×52mm	0.3kg
407DT200.9	200W	120VAC, 50/60Hz	94×70×52mm	0.3kg
407DT300.9	300W	120VAC, 50/60Hz	94×70×52mm	0.3kg
407DT350.9	350W	120VAC, 50/60Hz	94×70×52mm	0.3kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 408-D | 250W to 400W



With fast spring wiring connector just press the connector then insert cable into the hole is ok. Fast and safety.



- Pressure spring connectors for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Clip fixing, Quick installation

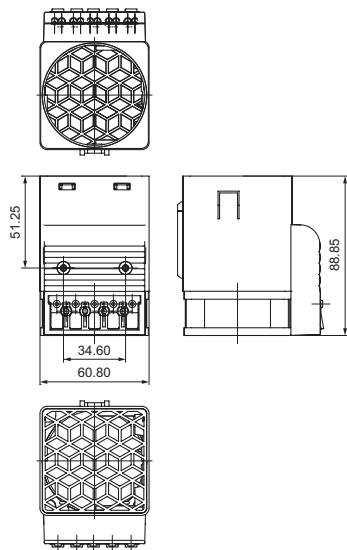
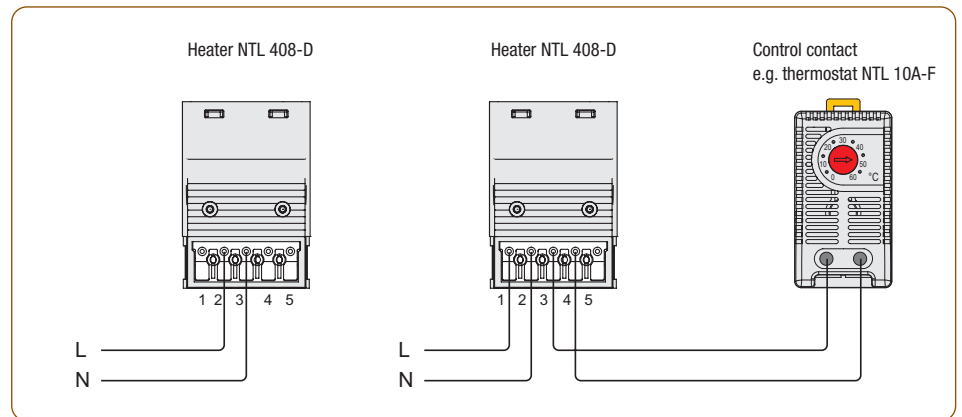
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 408-D makes it ideal for use in enclosures where space is at a premium.

### Technical Data

CE RoHS ISO9001 Patent

NTL 408-D	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
408D250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408D400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408D250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
408D400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 408-S | 250W to 400W



With fast spring wiring connector just press the connector then insert cable into the hole is ok. Fast and safety.

- Pressure spring connectors for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Screw fixing

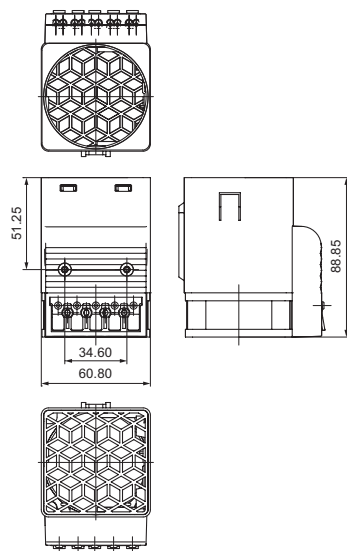
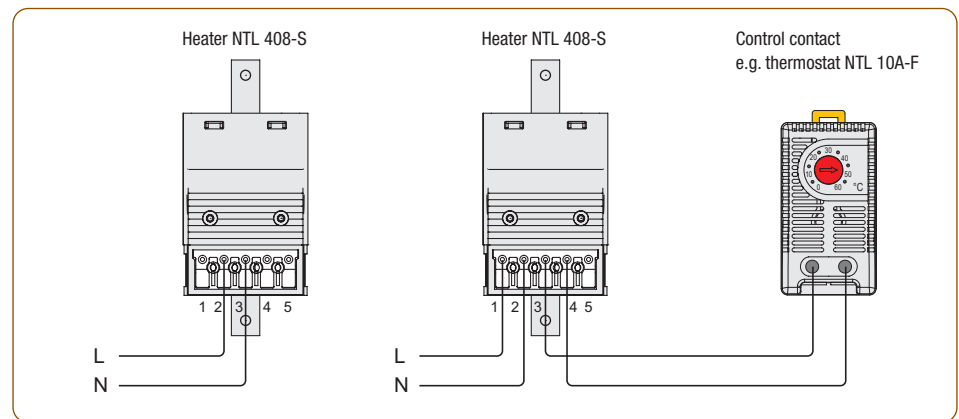
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 408-S makes it ideal for use in enclosures where space is at a premium.

#### Technical Data

CE RoHS ISO9001 Patent

NTL 408-S	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

#### Example of connection

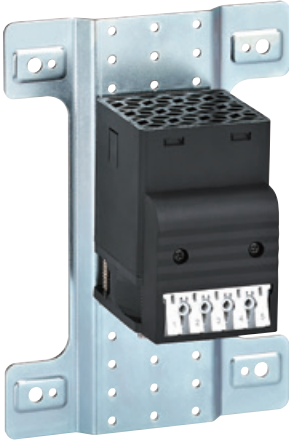


Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
408S250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408S400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408S250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
408S400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature



### NTL 408-M | 250W to 400W



With fast spring wiring connector just press the connector then insert cable into the hole is ok. Fast and safety.

- Pressure spring connectors for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Screw fixing

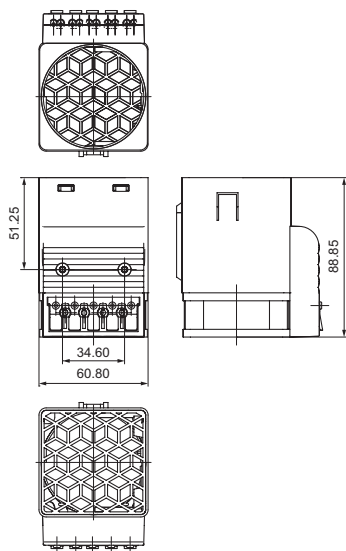
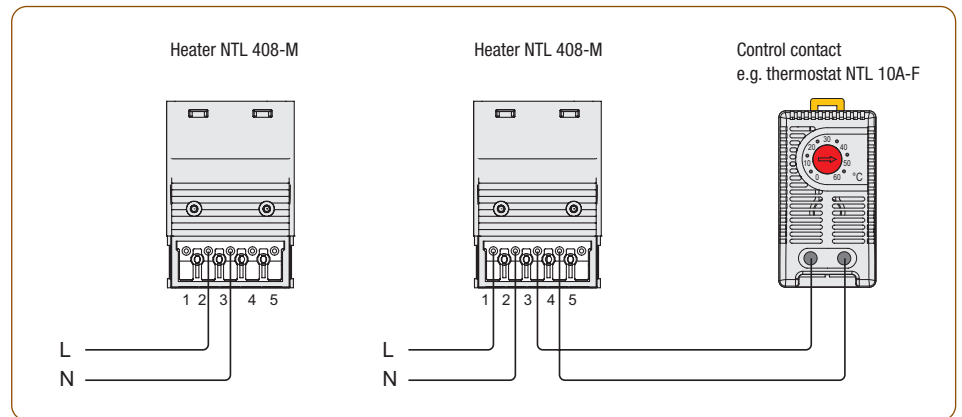
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 408-M makes it ideal for use in enclosures where space is at a premium.

CE RoHS ISO9001 Patent

### Technical Data

NTL 408-M	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	screw fixing
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
408M250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408M400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408M250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
408M400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 408-TM 250W to 400W



With fast spring wiring connector just press the connector then insert cable into the hole is ok. Fast and safety.

- Pressure spring connectors for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Screw fixing

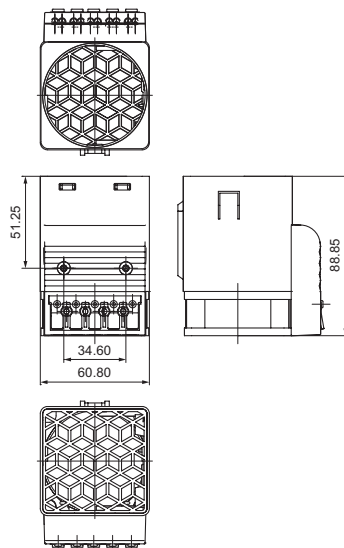
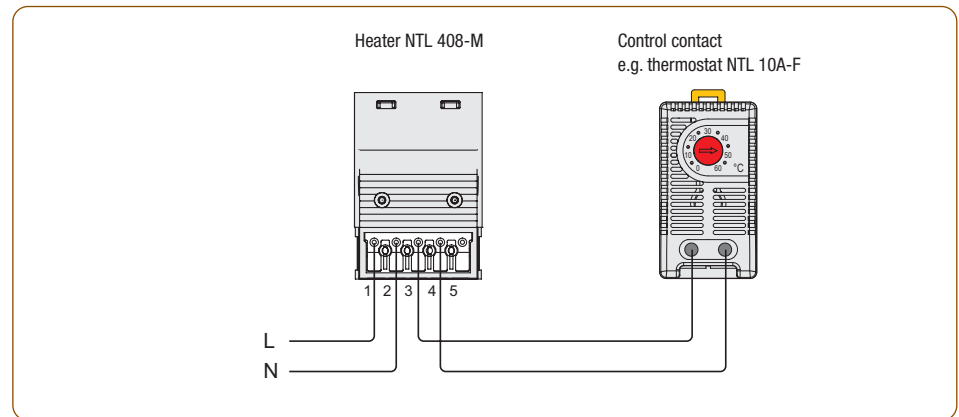
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 408-T makes it ideal for use in enclosures where space is at a premium.

CE RoHS ISO9001 Patent

#### Technical Data

NTL 408	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

#### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
408ST250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408ST400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
408ST250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
408ST400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 409 | 250W to 400W



With fast spring wiring connector just press the connector then insert cable into the hole is ok. Fast and safety.



- Pressure spring connectors for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Clip fixing

Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 409 makes it ideal for use in enclosures where space is at a premium.

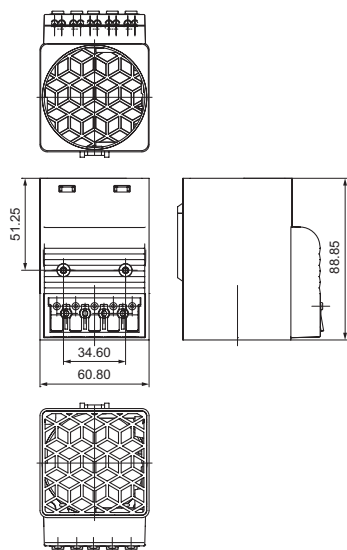
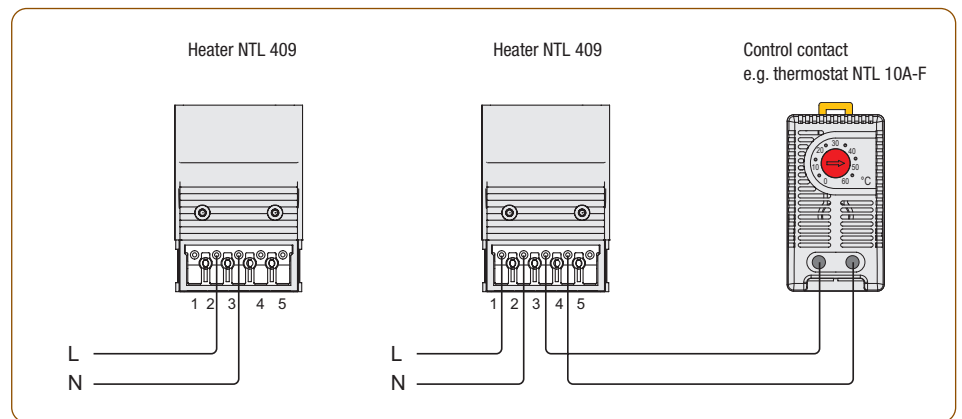
### Technical Data

CE RoHS ISO9001 Patent

#### NTL 409

Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	anodised extruded aluminium profile
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
409D250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409D400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409D250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
409D400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 409-A | 250W to 400W



With fast spring wiring connector just press the connector then insert cable into the hole is ok. Fast and safety.

- Pressure spring connectors for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Clip fixing

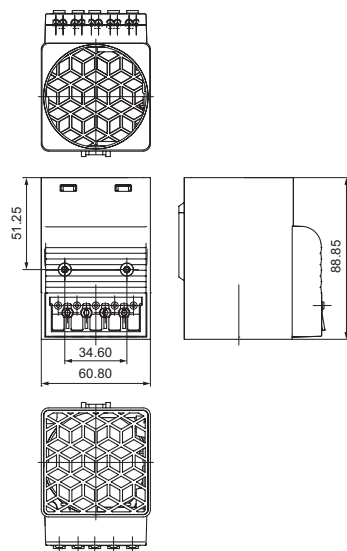
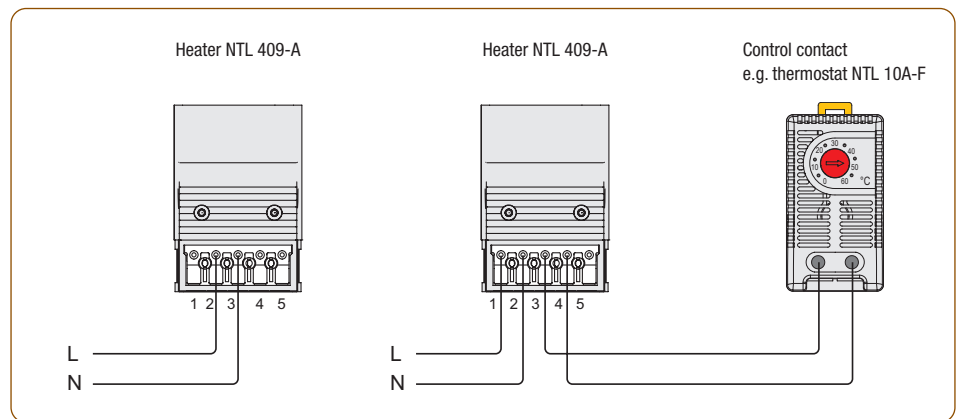
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 409-A makes it ideal for use in enclosures where space is at a premium.

CE RoHS ISO9001 Patent

### Technical Data

NTL 409-A	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	anodised extruded aluminium profile
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
409A250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409A400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409A250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
409A400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 409-S | 250W to 400W



- Pressure spring connectors for fast wiring
- Small, compact design save space
- Quiet in operation
- Dynamic heating up
- Screw fixing

Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 409-T makes it ideal for use in enclosures where space is at a premium.

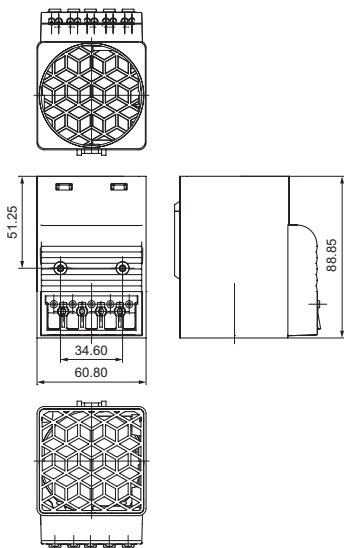
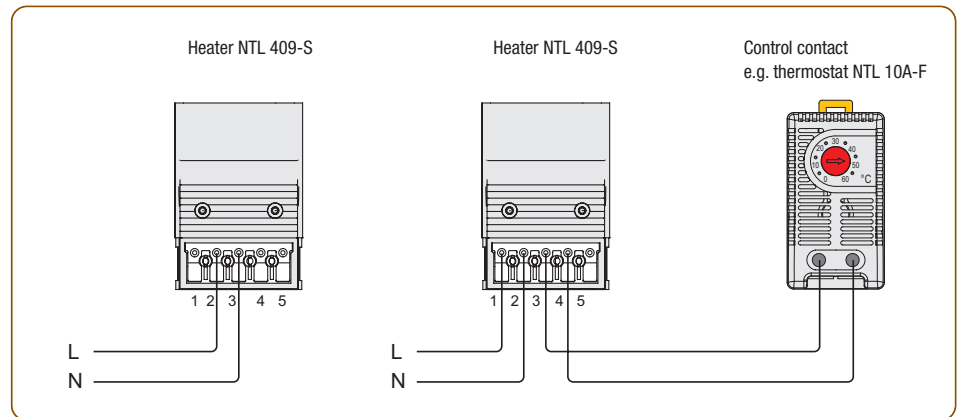
### Technical Data

CE RoHS ISO9001 Patent

#### NTL 409-T

Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	anodised extruded aluminium profile
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
409S250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409S400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409S250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
409S400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 409-M I 250W to 400W



With fast spring wiring connector just press the connector then insert cable into the hole is ok. Fast and safety.

- Small, compact design
- Quiet in operation
- Dynamic heating up
- Screw fixing

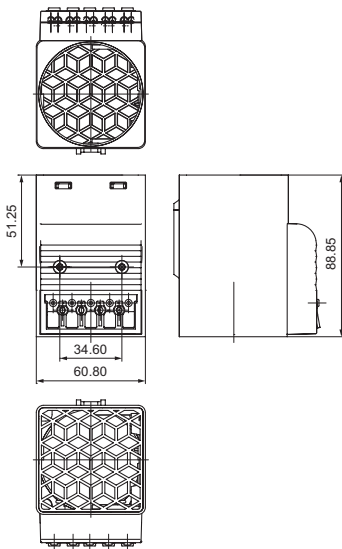
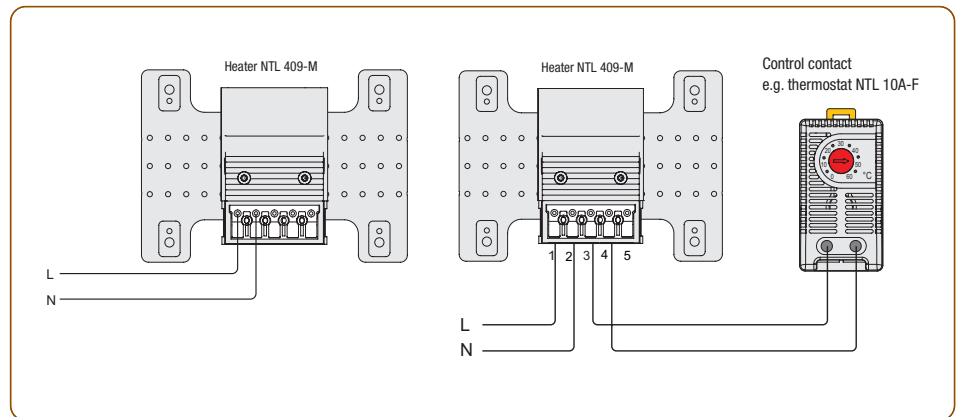
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 409-TM makes it ideal for use in enclosures where space is at a premium.

CE RoHS ISO9001 Patent

#### Technical Data

NTL 409-M	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	anodised extruded aluminium profile
Mounting	screw fixing
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

#### Example of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
409M250.0	250W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409M400.0	400W	230VAC, 50/60Hz	61×80×93mm	0.25kg
409M250.9	250W	120VAC, 50/60Hz	61×80×93mm	0.25kg
409M400.9	400W	120VAC, 50/60Hz	61×80×93mm	0.25kg

<sup>1</sup> at +20°C (+68°F) ambient temperature



### NTL 412-D | 150W to 400W



- With spring connector for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Clip fixing

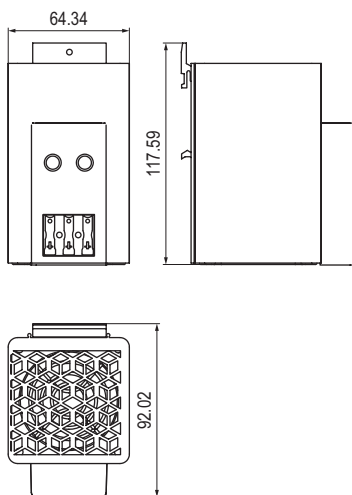
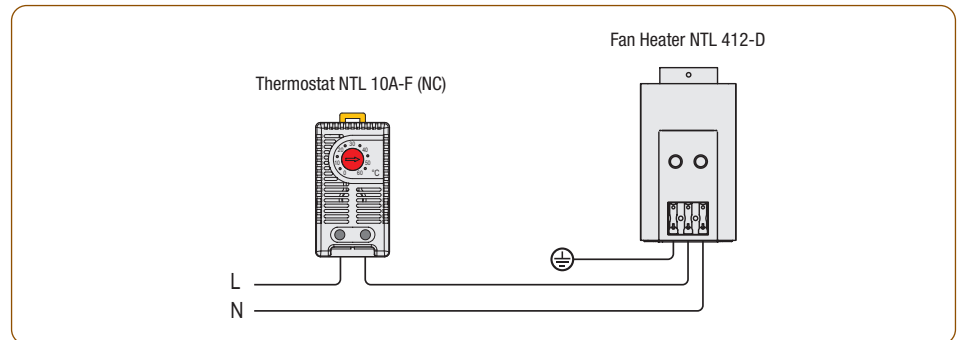
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 411 makes it ideal for use in enclosures where space is at a premium.

CE RoHS ISO9001 Patent

#### Technical Data

NTL 412-D	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	150W/250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø 5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

#### Examples of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
412D150.0	150W	230VAC, 50/60Hz	90×85×129mm	0.31kg
412D250.0	250W	230VAC, 50/60Hz		0.31kg
412D400.0	400W	230VAC, 50/60Hz		0.31kg
412D150.9	150W	120VAC, 50/60Hz		0.31kg
412D250.9	250W	120VAC, 50/60Hz		0.31kg
412D400.9	400W	120VAC, 50/60Hz		0.31kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 412-S | 150W to 400W



- With spring connector for fast wiring
- Small, compact design
- Quiet in operation
- Dynamic heating up
- Clip fixing

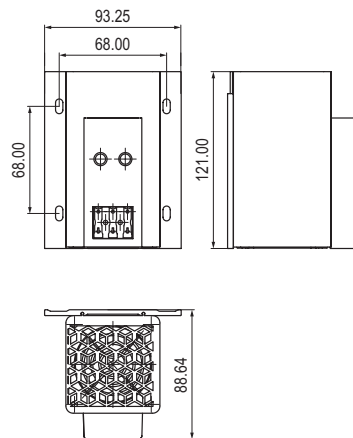
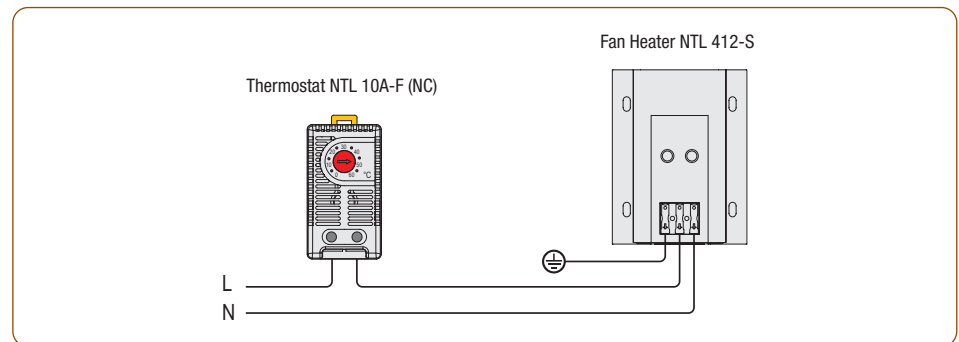
Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the NTL 411 makes it ideal for use in enclosures where space is at a premium.

CE RoHS ISO9001 Patent

#### Technical Data

NTL 412-S	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Surface temperature	150W/250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm², clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø 5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other voltages on request

#### Examples of connection



Art. No.	Heating capacity <sup>1</sup>	Operating voltage	Dimensions	Weight (approx.)
412S150.0	150W	230VAC, 50/60Hz	93×89×121mm	0.31kg
412S250.0	250W	230VAC, 50/60Hz	93×89×121mm	0.31kg
412S400.0	400W	230VAC, 50/60Hz	93×89×121mm	0.31kg
412S150.9	150W	120VAC, 50/60Hz	93×89×121mm	0.31kg
412S250.9	250W	120VAC, 50/60Hz	93×89×121mm	0.31kg
412S400.9	400W	120VAC, 50/60Hz	93×89×121mm	0.31kg

<sup>1</sup> at +20°C (+68°F) ambient temperature

### NTL 500 | 200W to 500W



- Compact
- Flat design
- Temperature safety cut-out
- Clip fixing

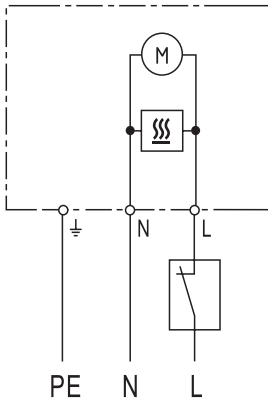
The compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater may only be operated together with fan, but is also available without axial fan (for self-installation). The fan heaters are available with two different mounting systems – either mounting by screw fixing or with a new and unique twist clip mounting system. These options allow for a quick and easy installation of the fan heater.

### Technical Data

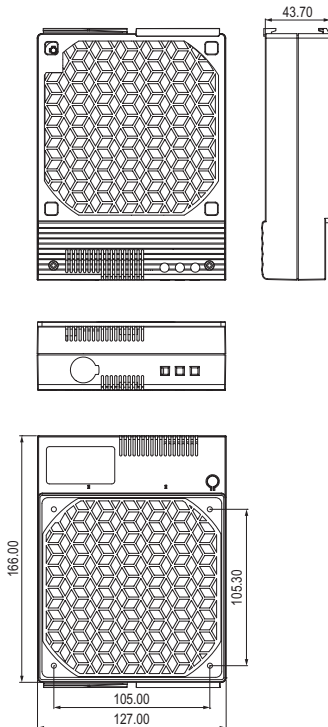
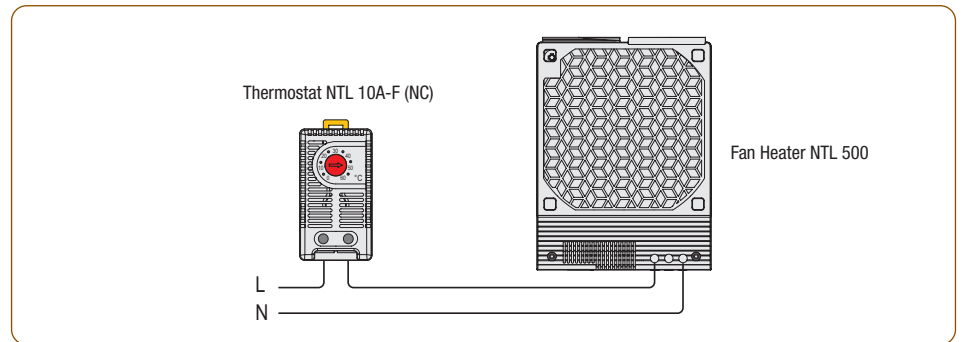
CE RoHS ISO9001 Patent

#### NTL 500

Operating voltage	120-250VAC/DC
Heating element	PTC
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Axial fan	not included in delivery, for self-assembly
Connection	2-pole dual pressure clamp for rigid wire 2.5mm <sup>2</sup> , stranded wire (with wire end ferrule) 1.5mm <sup>2</sup>
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Dimensions	160×127×43.7mm
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)



### Examples of connection



Art. No. clip fixing	Heating capacity	Operating voltage	Weight (approx.)
500200	200W	120-250VAC/DC	0.56kg
500300	300W	120-250VAC/DC	0.56kg
500400	400W	120-250VAC/DC	0.56kg
500500	500W	120-250VAC/DC	0.56kg

### NTL 500-F | 200W to 1200W



Patent Number: ZL 2019 3 0322768.4

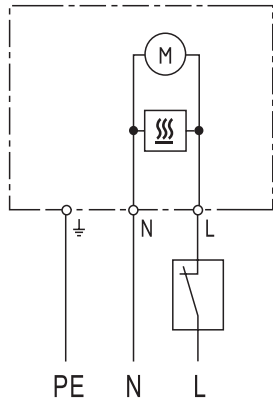
- Compact
- Flat design
- High air through-flow
- Temperature safety cut-out
- Clip fixing

The compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater may only be operated together with fan, but is also available without axial fan (for self-installation). The fan heaters are available with two different mounting systems – either mounting by screw fixing or with a new and unique twist clip mounting system. These options allow for a quick and easy installation of the fan heater.

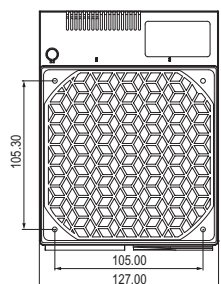
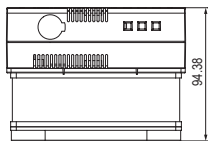
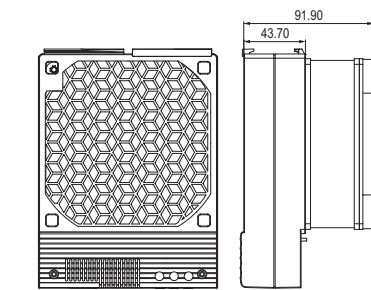
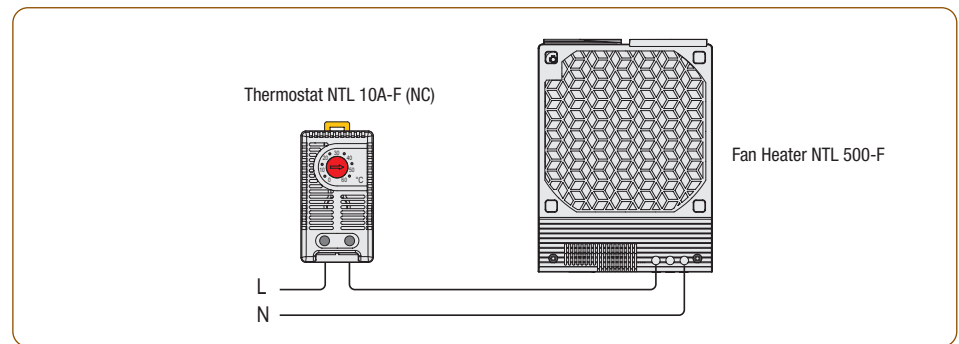
### Technical Data

CE RoHS ISO9001 Patent

NTL 500-F	
Operating voltage	230VAC or 120VAC
Heating element	PTC
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Axial fan, ball bearing	airflow 150m³/h, free flow. service life 50,000h at +25°C (+77°F)
Connection	3-pole dual pressure clamp for rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Dimensions	169×127×89mm
Weight	approx. 1.3kg
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / heater: II (double insulated); fan: I (earthed)



### Examples of connection



Type	Art. No. clip fixing	Heating Capacity	Operating Voltage	Type	Art. No. clip fixing	Heating Capacity	Operating Voltage
With 230VAC Fan	500F200.0	200W	120VAC, 50/60Hz	With 120VAC Fan	500F200.9	200W	120VAC, 50/60Hz
	500F300.0	300W			500F300.9	300W	
	500F400.0	400W			500F400.9	400W	
	500F500.0	500W			500F500.9	500W	
	500F600.0	600W			500F600.9	600W	
	500F700.0	700W			500F700.9	700W	
	500F800.0	800W			500F800.9	800W	
	500F900.0	900W			500F900.9	900W	
	500F1000.0	1000W			500F1000.9	1000W	
	500F1200.0	1200W			500F1200.9	1200W	

### NTL 650 | 300W to 650W



- Compact heater
- Integrated thermostat
- Clip fixing
- With on/off switch
- Temperature safety cut-out

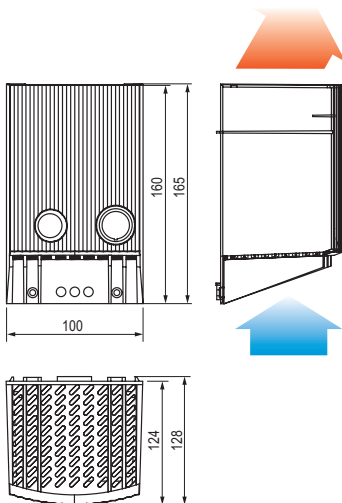
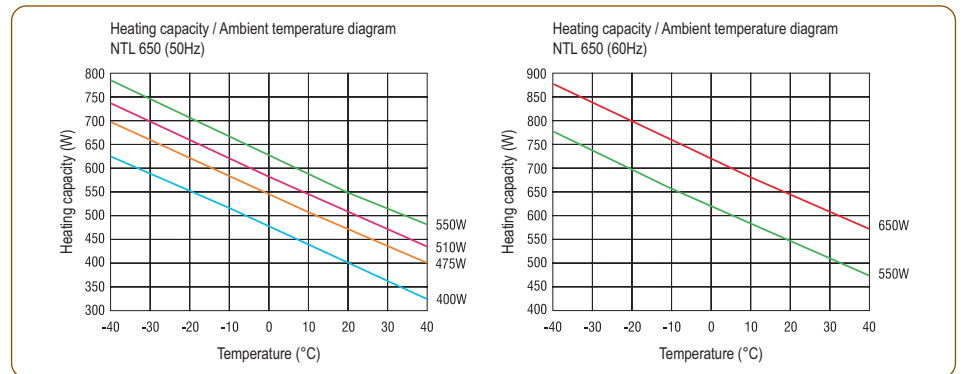
Semiconductor fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The integrated thermostat is used to set the desired temperature.

CE RoHS ISO9001 Patent

#### Technical Data

##### NTL 650

Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow see table. service life 50,000h at +25°C (+77°F)
Connection	2-pole clamp 2.5mm <sup>2</sup> , clamping torque 0.8Nm max
Casing	plastic according to UL94 V-0, light grey
With Thermostat	with thermostat to control temperature for heater
With on/off switch	can manual power on and off
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	100×128×165mm
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)



Art. No.	Operating voltage	Heating capacity <sup>1</sup>	Airflow, free flow	Setting range thermostat <sup>2</sup>	Weight (approx.)
650300.0	220-240VAC, 50Hz	300W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650400.0	220-240VAC, 60Hz	400W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650475.0	220-240VAC, 50Hz	475W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650510.0	220-240VAC, 60Hz	510W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650550.0	220-240VAC, 50Hz	550W	45m <sup>3</sup> /h	0 to +60°C	1.1kg
650650.0	220-240VAC, 60Hz	650W	45m <sup>3</sup> /h	0 to +60°C	1.1kg
650300.9	100-120VAC, 50Hz	300W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650400.9	100-120VAC, 60Hz	400W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650475.9	100-120VAC, 50Hz	475W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650510.9	100-120VAC, 60Hz	510W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650550.9	100-120VAC, 50Hz	550W	45m <sup>3</sup> /h	+32 to +140°F	1.1kg
650650.9	100-120VAC, 60Hz	650W	45m <sup>3</sup> /h	+32 to +140°F	1.1kg

<sup>1</sup> at +20°C (+68°F) ambient temperature; <sup>2</sup> Switch temperature difference 7K (±4K tolerance)

### NTL 650-M | 300W to 650W



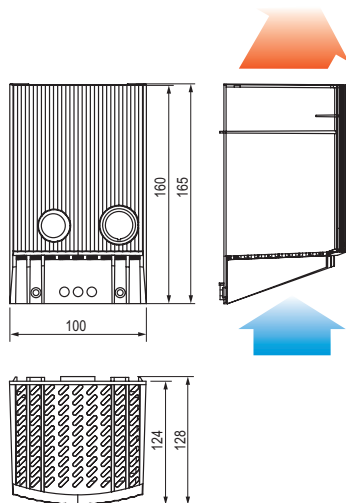
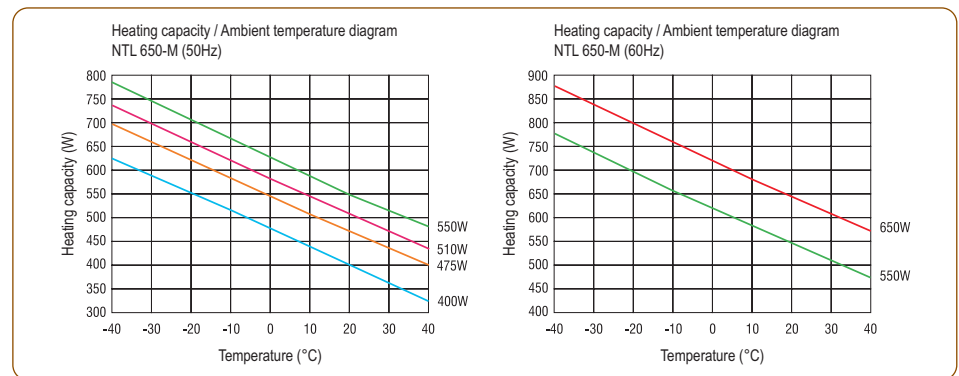
- Compact heater
- Integrated thermostat
- Screw fixing
- With on/off switch
- Temperature safety cut-out

Semiconductor fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The integrated thermostat is used to set the desired temperature.

#### Technical Data

CE RoHS ISO9001 Patent

NTL 650-M	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow see table. service life 50,000h at +25°C (+77°F)
Connection	2-pole clamp 2.5mm <sup>2</sup> , clamping torque 0.8Nm max
Casing	plastic according to UL94 V-0, light grey
With Thermostat	with thermostat to control temperature for heater
With on/off switch	can manual power on and off
Mounting	screw fixing
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	100×128×165mm
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)



Art. No.	Operating voltage	Heating capacity <sup>1</sup>	Airflow, free flow	Setting range thermostat <sup>2</sup>	Weight (approx.)
650M300.0	220-240VAC, 50Hz	300W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650M400.0	220-240VAC, 60Hz	400W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650M475.0	220-240VAC, 50Hz	475W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650M510.0	220-240VAC, 60Hz	510W	35m <sup>3</sup> /h	0 to +60°C	0.9kg
650M550.0	220-240VAC, 50Hz	550W	45m <sup>3</sup> /h	0 to +60°C	1.1kg
650M650.0	220-240VAC, 60Hz	650W	45m <sup>3</sup> /h	0 to +60°C	1.1kg
650M300.9	100-120VAC, 50Hz	300W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650M400.9	100-120VAC, 60Hz	400W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650M475.9	100-120VAC, 50Hz	475W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650M510.9	100-120VAC, 60Hz	510W	35m <sup>3</sup> /h	+32 to +140°F	0.9kg
650M550.9	100-120VAC, 50Hz	550W	45m <sup>3</sup> /h	+32 to +140°F	1.1kg
650M650.9	100-120VAC, 60Hz	650W	45m <sup>3</sup> /h	+32 to +140°F	1.1kg

<sup>1</sup> at +20°C (+68°F) ambient temperature; <sup>2</sup> Switch temperature difference 7K (±4K tolerance)



**NTL 1200RD | 800W to 1200W**

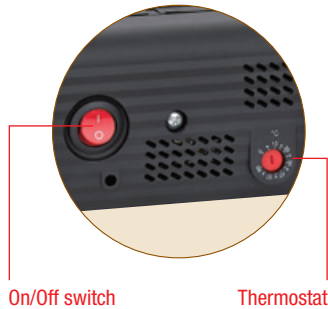
**New!**



Patent Number: ZL 2018 3 0400073.9

- With on/off switch
- High heating performance
- Double insulated
- Integrated thermostat
- Optional clip or screw fixing

The compact high performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic housing provides double insulation and acts as protection against contact. The fan heater is available with integrated thermostat for temperature control. The NTL 1200 was designed as a stationary unit for wall fixing. For fixing on the bottom of the enclosure the fan heater NTL 1200 is recommended.



On/Off switch

Thermostat



### Technical Data

**CE RoHS ISO9001 Patent**

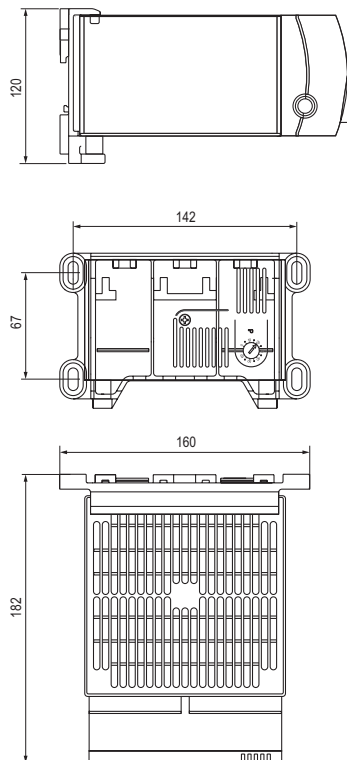
#### NTL 1200RD

Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow 160m³/h, free flow. service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm², clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (M6)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
With Thermostat	with thermostat to control temperature
With on/off switch	can manual power on and off
Dimensions	182×160×120mm
Weight	approx. 1.3kg
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

### Connection diagram

Heating capacity / Ambient temperature diagram  
NTL 1200RD

Temperature (°C)	Heating capacity (W)
-40	1550
-30	1480
-20	1410
-10	1340
0	1270
10	1200
20	1130
30	1060
40	1000



Art. No.	Model	Operating voltage	Heating capacity <sup>1</sup>	Setting range <sup>2</sup>
1200RD08.0	Fan Heater with thermostat	230VAC, 50/60Hz	800W	0 to +60°C
1200RD09.0	Fan Heater with thermostat	230VAC, 50/60Hz	900W	0 to +60°C
1200RD10.0	Fan Heater with thermostat	230VAC, 50/60Hz	1000W	0 to +60°C
1200RD12.0	Fan Heater with thermostat	230VAC, 50/60Hz	1200W	0 to +60°C
1200RD08.9	Fan Heater with thermostat	120VAC, 50/60Hz	800W	+32 to +140°F
1200RD09.9	Fan Heater with thermostat	120VAC, 50/60Hz	900W	+32 to +140°F
1200RD10.9	Fan Heater with thermostat	120VAC, 50/60Hz	1000W	+32 to +140°F
1200RD12.9	Fan Heater with thermostat	120VAC, 50/60Hz	1200W	+32 to +140°F

<sup>1</sup> at +20°C (+68°F) ambient temperature; <sup>2</sup> Switch temperature difference 7K (±4K tolerance)

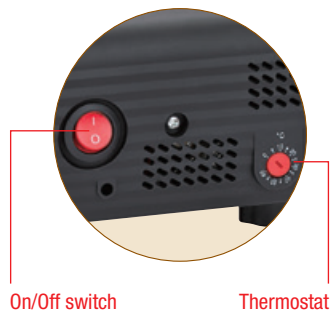
### NTL 1200RS | 800W to 1200W



Patent Number: ZL 2018 3 0400073.9

- With on/off switch
- High heating performance
- Double insulated
- Integrated thermostat
- Optional clip or screw fixing

The compact high performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic housing provides double insulation and acts as protection against contact. The fan heater is available with integrated thermostat for temperature control. The NTL 1200-S was designed as a stationary unit for wall fixing. For fixing on the bottom of the enclosure the fan heater NTL 1200-S is recommended.



On/Off switch

Thermostat

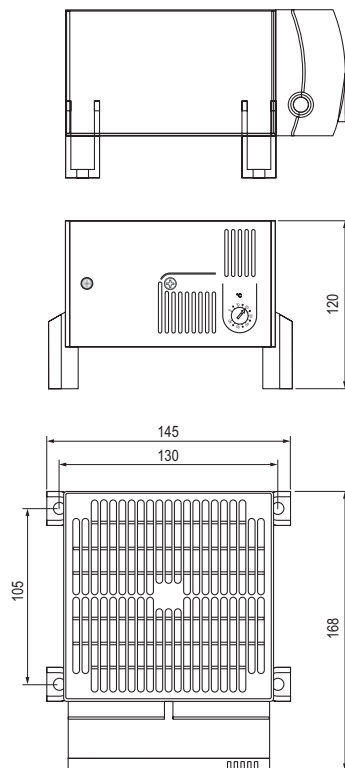
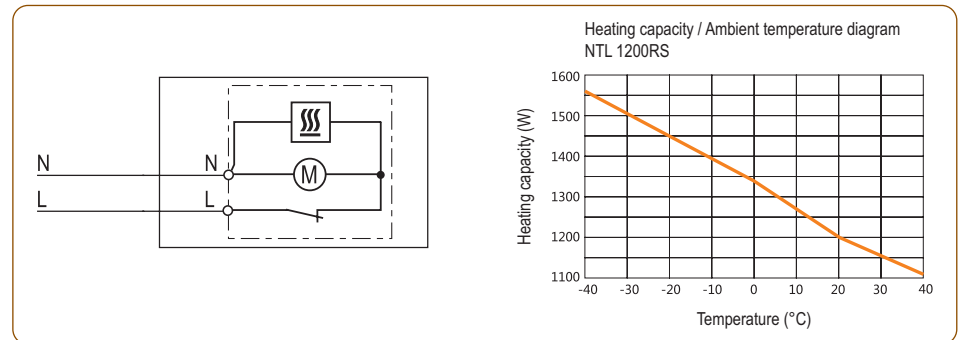
### Technical Data

CE RoHS ISO9001 Patent

#### NTL 1200RS

Operating voltage	230VAC or 120VAC
Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow 160m³/h, free flow. service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm², clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	screw fixing (M5)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
With Thermostat	with thermostat to control temperature
With on/off switch	can manual power on and off
Dimensions	168×145×120mm
Weight	approx. 1.2kg
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

### Connection diagram



Art. No.	Model	Operating voltage	Heating capacity <sup>1</sup>	Setting range <sup>2</sup>
1200RS08.0	Fan Heater with thermostat	230VAC, 50/60Hz	800W	0 to +60°C
1200RS09.0	Fan Heater with thermostat	230VAC, 50/60Hz	900W	0 to +60°C
1200RS10.0	Fan Heater with thermostat	230VAC, 50/60Hz	1000W	0 to +60°C
1200RS12.0	Fan Heater with thermostat	230VAC, 50/60Hz	1200W	0 to +60°C
1200RS08.9	Fan Heater with thermostat	120VAC, 50/60Hz	800W	+32 to +140°F
1200RS09.9	Fan Heater with thermostat	120VAC, 50/60Hz	900W	+32 to +140°F
1200RS10.9	Fan Heater with thermostat	120VAC, 50/60Hz	1000W	+32 to +140°F
1200RS12.9	Fan Heater with thermostat	120VAC, 50/60Hz	1200W	+32 to +140°F

<sup>1</sup> at +20°C (+68°F) ambient temperature; <sup>2</sup> Switch temperature difference 7K (±4K tolerance)

### NTL 1500 | 200W to 1500W



Patent Number: ZL 2014 3 0311874.X



- Compact Design
- Clip fixing or screw fixing
- Long service life
- Temperature safety cut-out

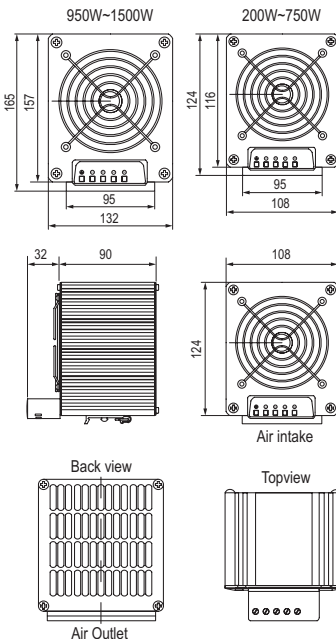
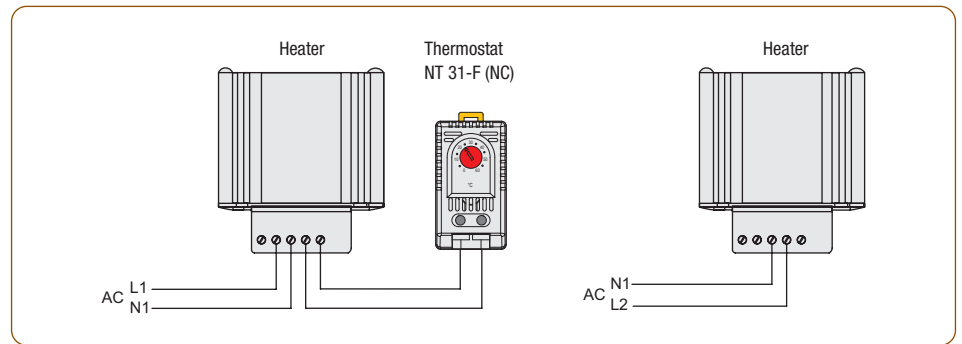
Compact fan heater prevents formation of condensation and frost. The integrated high-performance axial fan provides an evenly distributed interior air temperature in enclosures with electric/electronic components.

### Technical Data

CE RoHS ISO9001 Patent

NTL 1500	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor-temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	anodised extruded aluminium profile
Surface temperature	max. +75°C (1500W)
Axial fan, ball bearing	airflow, free flow 45m³/h (50Hz) or 54m³/h (60Hz) service life 50,000h at +25°C (+77°F)
Connection	internal connection terminal 1.5mm² with strain relief, clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or Screw fixing
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Note	other voltages on request

### Examples of connection



Art No. (230V)	Art No. (120V)	Heating capacity <sup>1</sup>	Dimensions	Weight (approx.)
1500020.0	1500020.9	200W	108×90×124mm	0.99kg
1500025.0	1500025.9	250W	108×90×124mm	0.99kg
1500030.0	1500030.9	300W	108×90×124mm	0.99kg
1500040.0	1500040.9	400W	108×90×124mm	0.99kg
1500075.0	1500075.9	750W	108×90×124mm	0.99kg
1500095.0	1500095.9	950W	108×90×165mm	1.60kg
1500100.0	1500100.9	1000W	108×90×165mm	1.60kg
1500120.0	1500120.9	1200W	108×90×165mm	1.60kg
1500150.0	1500150.9	1500W	108×90×165mm	1.60kg

### NTL 1500-S | 200W to 1500w



- Compact Design
- Screw fixing
- Long service life
- Temperature safety cut-out

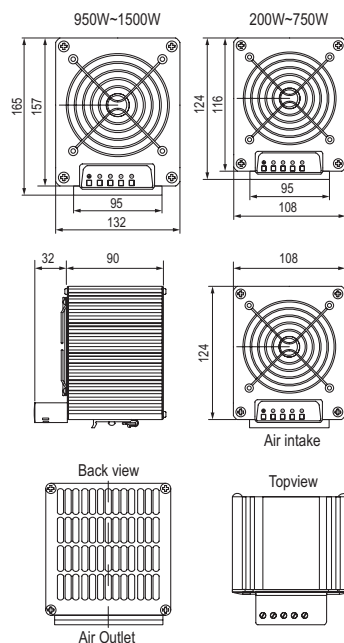
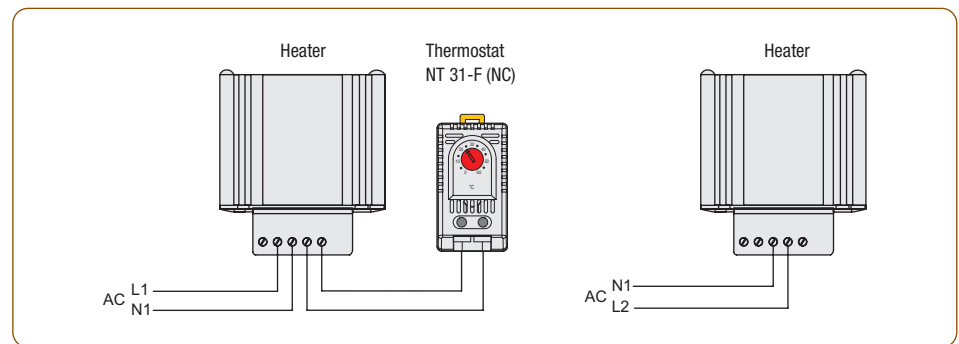
Compact fan heater prevents formation of condensation and frost. The integrated high-performance axial fan provides an evenly distributed interior air temperature in enclosures with electric/electronic components.

#### Technical Data

CE RoHS ISO9001 Patent

NTL 1500-S	
Operating voltage	230VAC or 120VAC
Heating element	PTC resistor-temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	anodised extruded aluminium profile
Surface temperature	max. +75°C (1500W)
Axial fan, ball bearing	airflow, free flow 45m³/h (50Hz) or 54m³/h (60Hz) service life 50,000h at +25°C (+77°F)
Connection	internal connection terminal 1.5mm² with strain relief, clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	screw fixing
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Note	other voltages on request

#### Examples of connection



Art No. (230V)	Art No. (120V)	Heating capacity <sup>1</sup>	Dimensions	Weight (approx.)
1500S020.0	1500S020.9	200W	108×90×124mm	0.99kg
1500S025.0	1500S025.9	250W	108×90×124mm	0.99kg
1500S030.0	1500S030.9	300W	108×90×124mm	0.99kg
1500S040.0	1500S040.9	400W	108×90×124mm	0.99kg
1500S075.0	1500S075.9	750W	108×90×124mm	0.99kg
1500S095.0	1500S095.9	950W	108×90×165mm	1.60kg
1500S100.0	1500S100.9	1000W	108×90×165mm	1.60kg
1500S120.0	1500S120.9	1200W	108×90×165mm	1.60kg
1500S150.0	1500S150.9	1500W	108×90×165mm	1.60kg

**Natural<sup>®</sup>**

# Ventilating

Fan Filter



CE RoHS ISO9001 Patent

WENZHOU NATURAL  
AUTOMATION EQUIPMENT CO., LTD.  
[www.china-natural.com](http://www.china-natural.com)











### Type and Meaning

NTL - FF 120 - 230A - □  
 ① ② ③ ④ ⑤

① Enterprise code	<b>NTL:</b> Wenzhou Natural Automation Equipment Co., Ltd.
② Product type	<b>FF:</b> Thinner Type, <b>FNF:</b> Thinner Type, <b>SFF:</b> Slide Type, <b>LDF:</b> Lock Door Type, <b>FCF:</b> , <b>FF125-W:</b> Rain-Resistant Type, <b>FF018:</b> Rain-Resistant Type, <b>TF:</b> Roof Fans
③ Product specification	<b>106:</b> 106×106mm, <b>120:</b> 120×120mm, <b>152:</b> 152×152mm, <b>200:</b> 200×200mm, <b>204:</b> 204×204mm, <b>255:</b> 255×255mm, <b>323:</b> 323×323mm
④ Power supply	<b>115:</b> 115VAC, <b>230:</b> 230VAC, <b>D:</b> 120&230VAC, <b>12:</b> 12VDC, <b>24:</b> 24VDC, <b>48:</b> 48VDC
⑤ Additional features	More Models see following notes: <b>Model+C:</b> With Connector, <b>Model+S:</b> With Thread, <b>Model+CS:</b> With Connector and Thread, <b>Model+F:</b> Fireproof, <b>Model+FC:</b> Fireproof and With Connector <b>Model+FS:</b> Fireproof and With Thread, <b>Model+FCS:</b> Fireproof, With Connector, With Thread Colour code: <b>Normal Model</b> is RAL 7035 color, <b>Model+7032:</b> With RAL 7032 Color, <b>Model+9011:</b> With RAL 9011 Color, <b>Model+6.5:</b> With MUNSELL N6.5 Color

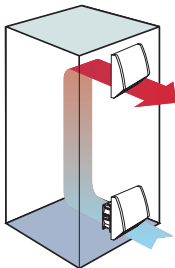
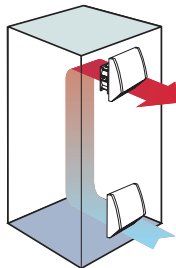
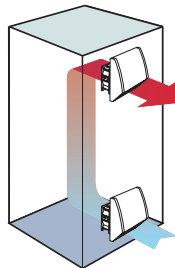
### Product Type

FF: Thinner Type 	FNF: Thinner Type 	SFF: Slide Type 	LDF: Lock Door Type 
FCF: Spring Type 	FF □ -W: Rain-Resistant Type 	FF018: E-Class Type 	TF: Roof Fans 

### We can offer different colors:

RAL 7035 	RAL 7032 	RAL 9011 	MUNSELL N6.5 
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### We can offer the following air direction:

A 	B 	C 
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NTL-TF



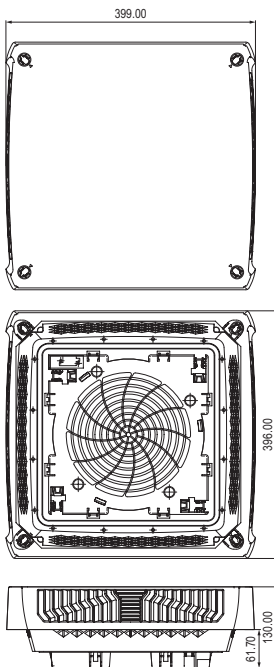
### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032

### Technical Data

NTL-TF	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Dimensions	400×135×400mm
Enclosure cut-out	258×258 <sup>+1</sup> mm
Centrifugal Fan	capacitive motor
Filter mat	G4
Filter material	ABS
Operating temperature	50 Hz: -25 to +55°C (-13 to+ 131°F), 60 Hz: -25 to +35°C (-13 to +95°F)
Storage temperature	-40 to +70°C (-40 to+ 158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	without filter mat: IP22, with filter mat: IP55



### Technical Parameters

Art. No.	Power supply	Air flow rate (free blow) no filter mat (m <sup>3</sup> /h)	Air flow rate (free blow) with filter mat (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
NTL-TF230	-	-	-	-	-	-
NTL-TF230A	230VAC	570/620	430/465	60/71	0.28/0.31	71
NTL-TF230B	230VAC	860/900	675/702	98/118	0.46/0.51	74
NTL-TF230C	230VAC	1200/1340	870/960	130/170	0.60/0.74	71
NTL-TF115	115VAC	1200/1340	870/960	130/171	1.30/1.45	71
NTL-TF380A	380VAC	570/620	430/465	60/71	0.28/0.31	71
NTL-TF380B	380VAC	860/900	675/702	98/118	0.46/0.51	74
NTL-TF380C	380VAC	1200/1340	870/960	130/170	0.60/0.74	71

### NTL-FN120: Exit Filter



Patent Number: ZL 2019 3 0322398.4

### NTL-FNF120: Filter Fan



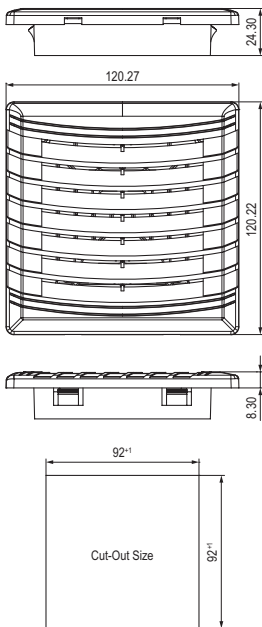
### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FNF120	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h fan body aluminium, rotor metal
Connection	2 stranded wires, 300mm
Enclosure cut-out	92×92 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)



### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m³/h)	Air flow rate (with mat) (m³/h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN120	-	without fan	-	-	-	-	-
FNF120-230A-C	230VAC	80×80×25	30/41	24	14/12	0.07	27/30
FNF120-230B-C	230VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FNF120-230C-C	230VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FNF120-115A-C	115VAC	80×80×25	30/41	24	14/12	0.07	27/30
FNF120-115B-C	115VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FNF120-115C-C	115VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FNF120-D-C	120&230VAC	80×80×38	39/48	26	13/10	0.078/0.062	27/30
FNF120-12-C	12VDC	80×80×38	84	30	4.8	0.4	30
FNF120-24-C	24VDC	80×80×38	84	30	4.8	0.2	30
FNF120-48-C	48VDC	80×80×38	84	30	4.8	0.1	30

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-FN152: Exit Filter



### NTL-FNF152: Filter Fan



Patent Number: ZL 2019 3 0322398.4

### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

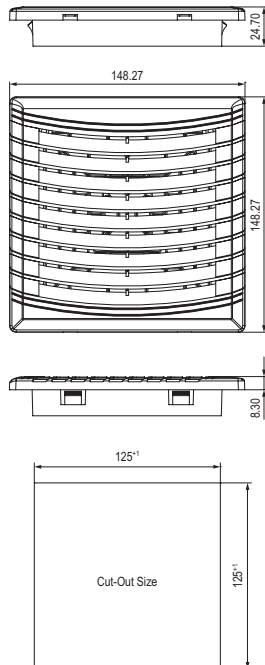
#### NTL-FNF152

Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Enclosure cut-out	125×125 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m³/h)	Air flow rate (with mat) (m³/h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN152	-	without fan	-	-	-	-	-
FNF152-230A-C	230VAC	120×120×25	96/112	65	16	0.08	39/42
FNF152-230B-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
FNF152-115A-C	115VAC	120×120×25	96/112	65	16	0.16	39/42
FNF152-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
FNF152-D-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
FNF152-400-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
FNF152-12-C	12VDC	120×120×38	180	120	7.2	0.6	48
FNF152-24-C	24VDC	120×120×38	180	120	9.6	0.4	48
FNF152-48-C	48VDC	120×120×38	180	120	9.6	0.2	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-FN204: Exit Filter



Patent Number: ZL 2019 3 0322398.4

### NTL-FNF204: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

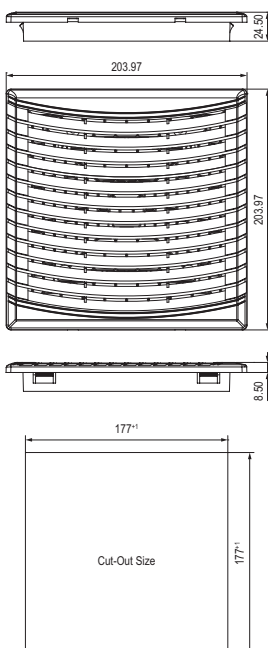
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FNF204	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 65,000h fan body aluminium, rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	177×177 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN204	-	without fan	-	-	-	-	-
FNF204A-230A-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
FNF204A-230B-C	230VAC	120×120×25	96/112	65	14/12	0.07	43/48
FNF204-230C-C	230VAC	150×150×50	272/316	200	26/28	0.23/0.2	54/59
FNF204-230D-C	230VAC	Ø172×55	272/316	200	26/28	0.23/0.2	52/62
FNF204-230E-C	230VAC	172×150×51	272/316	200	26/28	0.23/0.2	52/62
FNF204A-115A-C	115VAC	120×120×25	96/112	65	21/18	0.22/0.18	43/48
FNF204A-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
FNF204-115C-C	115VAC	150×150×50	272/316	200	26/28	0.43/0.4	54/59
FNF204-115D-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FNF204-115E-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF204A-D1-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
FNF204-D2-C	120&230VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FNF204A-400A-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
FNF204-400B-C	400VAC	150×150×50	138/162	200	26/28	0.13/0.11	43/48
FNF204-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
FNF204-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FNF204A-12A-C	12VDC	120×120×38	180	120	7.2	0.6	48
FNF204-12B-C	12VDC	172×150×51	374	260	12	1	62
FNF204A-24A-C	24VDC	120×120×38	180	120	9.6	0.4	48
FNF204-24B-C	24VDC	172×150×51	374	260	12	0.5	48
FNF204A-48A-C	48VDC	120×120×38	180	120	9.6	0.2	48
FNF204-48B-C	48VDC	172×152×51	374	260	12	0.25	48



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

**NTL-FN255: Exit Filter**



Patent Number: ZL 2019 3 0322398.4

**NTL-FNF255: Filter Fan**



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

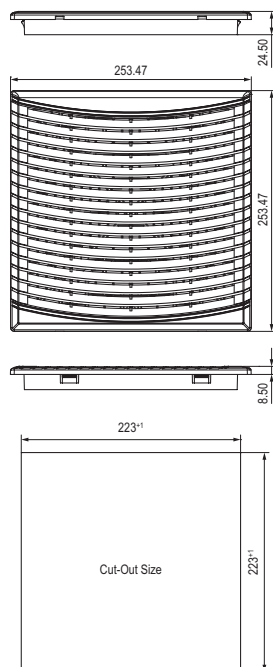
### Technical Data

NTL-FNF255	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	223×223 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN255	-	without fan	-	-	-	-	-
FNF255-230A-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FNF255-230B-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255-230C-C	230VAC	Ø220×60	800/1000	500	48/63	0.23/0.28	63/66
FNF255-230D-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FNF255A-230E-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FNF255A-230F-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255A-230G-C	230VAC	180×180×65	586/671	380	42/50	0.2/0.24	63/68
FNF255-115A-C	115VAC	Ø220×60	800/1000	500	48/63	0.42	63/66
FNF255-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FNF255A-115C-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FNF255A-115D-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255A-115E-C	115VAC	180×180×65	586/671	380	42/50	0.42	63/68
FNF255A-D-C	120&230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255-400A-C	400VAC	Ø220×60	800/1000	550	48/63	0.25	63/66
FNF255-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FNF255A-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
FNF255A-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FNF255A-400E-C	400VAC	180×180×65	586/671	380	42/50	0.15	63/68
FNF255A-12A-C	12VDC	172×150×51	374	260	12	1	62
FNF255-12B-C	12VDC	200×200×60	1008	480	24	2	68
FNF255A-24A-C	24VDC	172×150×51	374	260	12	0.5	62
FNF255-24B-C	24VDC	200×200×60	1008	480	24	1	68
FNF255A-48A-C	48VDC	172×152×51	374	260	12	0.25	62
FNF255-48B-C	48VDC	200×200×60	1008	480	24	0.5	68

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.





### NTL-FN323: Exit Filter



Patent Number: ZL 2019 3 0322398.4

### NTL-FNF323: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

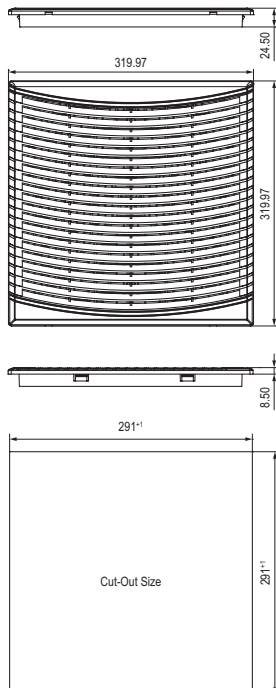
### Technical Data

NTL-FNF323	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	291×291 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN323	-	without fan	-	-	-	-	-
FNF323-230A-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FNF323A-230B-C	230VAC	200×200×60	800/1000	480	48/63	0.23/0.28	63/66
FNF323A-230C-C	230VAC	Ø220×60	800/1000	550	48/63	0.23/0.28	63/66
FNF323A-230D-C	230VAC	225×225×80	1000/1150	700	72/80	0.33/0.35	63/66
FNF323-230E-C	230VAC	280×280×80	1200/1400	850	120/160	0.5/0.7	65/70
FNF323-115A-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FNF323A-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FNF323A-115C-C	115VAC	Ø220×60	800/1000	480	48/63	0.42	63/66
FNF323A-115D-C	115VAC	225×225×80	1000/1150	700	70/80	0.65/0.7	63/66
FNF323-115E-C	115VAC	280×280×80	1200/1400	850	120/160	1/1/1.4	65/70
FNF323-400A-C	400VAC	200×200×60	800/1000	400	60	0.2	63/66
FNF323A-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FNF323A-400C-C	400VAC	Ø220×60	800/1000	480	60	0.2	63/66
FNF323A-400D-C	400VAC	225×225×80	1000/1150	700	72/80	0.2	63/66
FNF323-400E-C	400VAC	280×280×80	1200/1400	850	120	0.36	65/70
FNF323A-12-C	12VDC	200×200×60	1008	700	24	2	68
FNF323A-24-C	24VDC	200×200×60	1008	700	24	1	68
FNF323A-48-C	48VDC	200×200×60	1008	700	24	0.5	68

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.





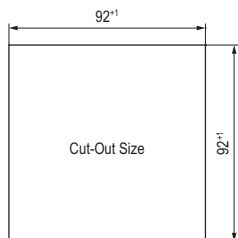
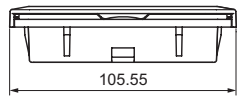
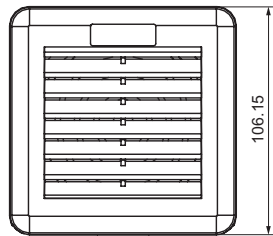
### NTL-SF106: Exit Filter



### NTL-SFF106: Filter Fan



Slide UP and DOWN



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-SFF106	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h fan body aluminium, rotor metal
Connection	2 stranded wires, 300mm
Enclosure cut-out	92×92 <sup>+1</sup> mm
Mounting frame	fast fixing with clips for different size thickness of cabinet and enclosure, no need screw fixing
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF106	-	without fan	-	-	-	-	-
SFF106-230A-C	230VAC	80×80×25	30/41	24	14/12	0.07	27/30
SFF106-230B-C	230VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
SFF106-115A-C	115VAC	80×80×25	30/41	24	14/12	0.07	27/30
SFF106-115B-C	115VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
SFF106-D-C	120&230VAC	80×80×38	39/48	26	13/10	0.078/0.062	27/30
SFF106-12-C	12VDC	80×80×38	84	30	4.8	0.4	30
SFF106-24-C	24VDC	80×80×38	84	30	4.8	0.2	30
SFF106-48-C	48VDC	80×80×38	84	30	4.8	0.1	30

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

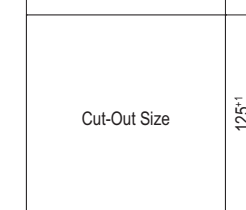
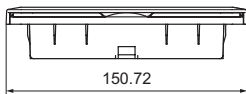
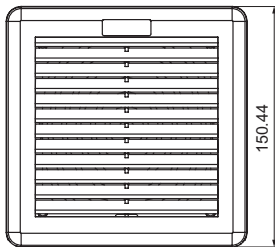
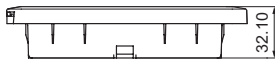
### NTL-SF150: Exit Filter



### NTL-SFF150: Filter Fan



Slide UP and DOWN



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-SFF150	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Enclosure cut-out	125×125 <sup>+1</sup> mm
Mounting frame	fast fixing with clips for different size thickness of cabinet and enclosure, no need screw fixing
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF150	-	without fan	-	-	-	-	-
SFF150-230A-C	230VAC	120×120×25	96/112	65	16	0.08	39/42
SFF150-230B-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
SFF150-115A-C	115VAC	120×120×25	96/112	65	16	0.16	39/42
SFF150-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
SFF150-D-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
SFF150-400-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
SFF150-12-C	12VDC	120×120×38	180	120	7.2	0.6	48
SFF150-24-C	24VDC	120×120×38	180	120	9.6	0.4	48
SFF150-48-C	48VDC	120×120×38	180	120	9.6	0.2	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-SF200: Exit Filter



### NTL-SFF200: Filter Fan



Slide UP and DOWN

### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

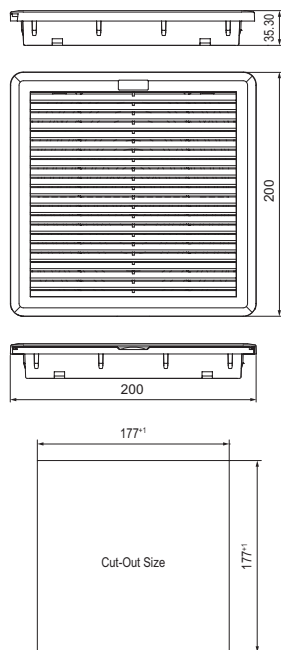
### Technical Data

NTL-SFF200	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 37,000 h, fan body aluminium, rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	177×177 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF200	-	without fan	-	-	-	-	-
SFF200A-230A-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
SFF200A-230B-C	230VAC	120×120×25	96/112	65	14/12	0.07	43/48
SFF200-230C-C	230VAC	150×150×50	272/316	200	26/28	0.23/0.2	54/59
SFF200-230D-C	230VAC	Ø172×55	272/316	200	26/28	0.23/0.2	52/62
SFF200-230E-C	230VAC	172×150×51	272/316	200	26/28	0.23/0.2	52/62
SFF200A-115A-C	115VAC	120×120×25	96/112	65	21/18	0.22/0.18	43/48
SFF200A-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
SFF200-115C-C	115VAC	150×150×50	272/316	200	26/28	0.43/0.4	54/59
SFF200-115D-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF200-115E-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF200A-D1-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
SFF200-D2-C	120&230VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
SFF200A-400A-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
SFF200-400B-C	400VAC	150×150×50	138/162	200	26/28	0.13/0.11	43/48
SFF200-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
SFF200-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
SFF200A-12A-C	12VDC	120×120×38	180	120	7.2	0.6	48
SFF200-12B-C	12VDC	172×150×51	374	260	12	1	62
SFF200A-24A-C	24VDC	120×120×38	180	120	9.6	0.4	48
SFF200-24B-C	24VDC	172×150×51	374	260	12	0.5	48
SFF200A-48A-C	48VDC	120×120×38	180	120	9.6	0.2	48
SFF200-48B-C	48VDC	172×152×51	374	260	12	0.25	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-SF250: Exit Filter



### NTL-SFF250: Filter Fan



Slide UP and DOWN

### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

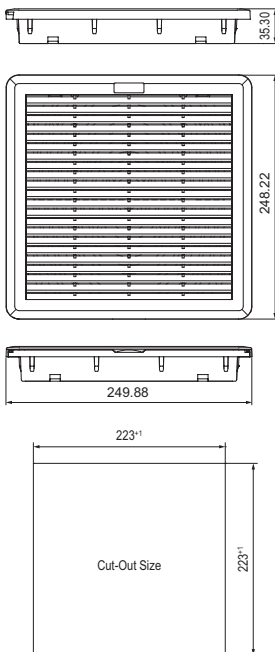
#### NTL-SFF250

Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	223×223 <sup>+1</sup> mm
Mounting frame	fast fixing with clips for different size thickness of cabinet and enclosure, no need screw fixing
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF250	-	without fan	-	-	-	-	-
SFF250-230A-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF250-230B-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250-230C-C	230VAC	Ø220×60	800/1000	500	48/63	0.23/0.28	63/66
SFF250-230D-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
SFF250A-230E-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF250A-230F-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250A-230G-C	230VAC	180×180×65	586/671	380	42/50	0.2/0.24	63/68
SFF250-115A-C	115VAC	Ø220×60	800/1000	500	48/63	0.42	63/66
SFF250-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
SFF250A-115C-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF250A-115D-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250A-115E-C	115VAC	180×180×65	586/671	380	42/50	0.42	63/68
SFF250A-D-C	120&230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250-400A-C	400VAC	Ø220×60	800/1000	550	48/63	0.25	63/66
SFF250-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
SFF250A-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
SFF250A-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
SFF250A-400E-C	400VAC	180×180×65	586/671	380	42/50	0.15	63/68
SFF250A-12A-C	12VDC	172×150×51	374	260	12	1	62
SFF250-12B-C	12VDC	200×200×60	1008	480	24	2	68
SFF250A-24A-C	24VDC	172×150×51	374	260	12	0.5	62
SFF250-24B-C	24VDC	200×200×60	1008	480	24	1	68
SFF250A-48A-C	48VDC	172×152×51	374	260	12	0.25	62
SFF250-48B-C	48VDC	200×200×60	1008	480	24	0.5	68

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-SF322: Exit Filter



### NTL-SFF322: Filter Fan



Slide UP and DOWN

### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

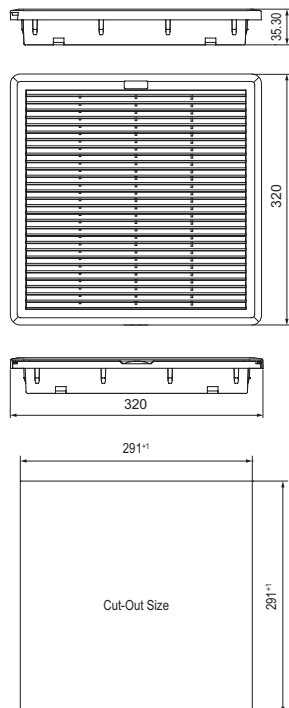
### Technical Data

NTL-SFF322	
Axial fan, ball bearing	service life L10 at +40 °C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	291×291 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF322	-	without fan	-	-	-	-	-
SFF322-230A-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
SFF322A-230B-C	230VAC	200×200×60	800/1000	480	48/63	0.23/0.28	63/66
SFF322A-230C-C	230VAC	Ø220×60	800/1000	550	48/63	0.23/0.28	63/66
SFF322A-230D-C	230VAC	225×225×80	1000/1150	700	72/80	0.33/0.35	63/66
SFF322-230E-C	230VAC	280×280×80	1200/1400	850	120/160	0.5/0.7	65/70
SFF322-115A-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
SFF322A-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
SFF322A-115C-C	115VAC	Ø220×60	800/1000	480	48/63	0.42	63/66
SFF322A-115D-C	115VAC	225×225×80	1000/1150	700	70/80	0.65/0.7	63/66
SFF322-115E-C	115VAC	280×280×80	1200/1400	850	120/160	1/1/1.4	65/70
SFF322-400A-C	400VAC	200×200×60	800/1000	400	60	0.2	63/66
SFF322A-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
SFF322A-400C-C	400VAC	Ø220×60	800/1000	480	60	0.2	63/66
SFF322A-400D-C	400VAC	225×225×80	1000/1150	700	72/80	0.2	63/66
SFF322-400E-C	400VAC	280×280×80	1200/1400	850	120	0.36	65/70
SFF322A-12-C	12VDC	200×200×60	1008	700	24	2	68
SFF322A-24-C	24VDC	200×200×60	1008	700	24	1	68
SFF322A-48-C	48VDC	200×200×60	1008	700	24	0.5	68

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.





### NTL-FC120: Exit Filter



### NTL-FCF120: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

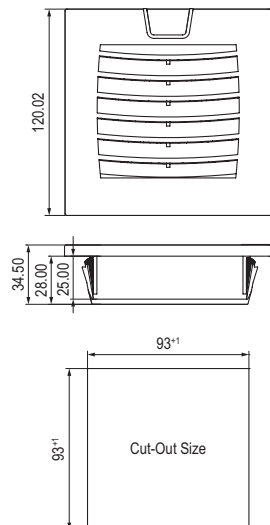
### Technical Data

NTL-FCF120	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h fan body aluminium, rotor metal
Connection	2 stranded wires, 300mm
Enclosure cut-out	93×93mm <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed.
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC120	-	without fan	-	-	-	-	-
FCF120-230A-C	230VAC	80×80×25	30/41	24	14/12	0.07	27/30
FCF120-230B-C	230VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FCF120-230C-C	230VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FCF120-115A-C	115VAC	80×80×25	30/41	24	14/12	0.07	27/30
FCF120-115B-C	115VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FCF120-115C-C	115VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FCF12-D-C	120&230VAC	80×80×38	39/48	26	13/10	0.078/0.062	27/30
FCF120-12-C	12VDC	80×80×38	84	30	4.8	0.4	30
FCF120-24-C	24VDC	80×80×38	84	30	4.8	0.2	30
FCF120-48-C	48VDC	80×80×38	84	30	4.8	0.1	30

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.





### NTL-FC152: Exit Filter



### NTL-FCF152: Filter Fan



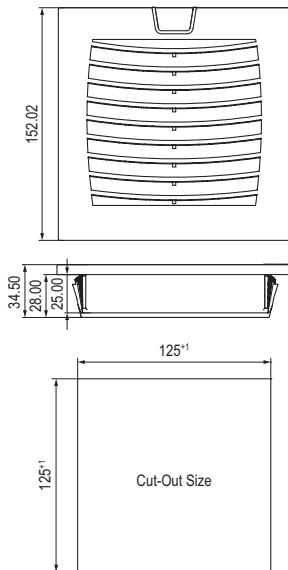
#### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

#### Technical Data

NTL-FCF152	
Axial fan, ball bearing	service life L10 at +40 °C (+104 °F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Enclosure cut-out	125×125 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed.
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)



#### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m³/h)	Air flow rate (with mat) (m³/h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC152	-	without fan	-	-	-	-	-
FCF152-230A-C	230VAC	120×120×25	96/112	65	16	0.08	39/42
FCF152-230B-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
FCF152-115A-C	115VAC	120×120×25	96/112	65	16	0.16	39/42
FCF152-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
FCF152-D-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
FCF152-400-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
FCF152-12-C	12VDC	120×120×38	180	120	7.2	0.6	48
FCF152-24-C	24VDC	120×120×38	180	120	9.6	0.4	48
FCF152-48-C	48VDC	120×120×38	180	120	9.6	0.2	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-FC204: Exit Filter



### NTL-FCF204: Filter Fan



### Product Applications:

Out products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

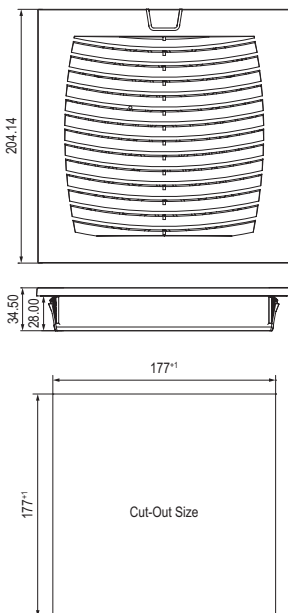
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FCF204	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 65,000h fan body aluminium, rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	177×177 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed <sup>1</sup> .
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC204	-	without fan	-	-	-	-	-
FCF204A-230A-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
FCF204A-230B-C	230VAC	120×120×25	96/112	65	14/12	0.07	43/48
FCF204-230C-C	230VAC	150×150×50	272/316	200	26/28	0.23/0.2	54/59
FCF204-230D-C	230VAC	Ø172×55	272/316	200	26/28	0.23/0.2	52/62
FCF204-230E-C	230VAC	172×150×51	272/316	200	26/28	0.23/0.2	52/62
FCF204A-115A-C	115VAC	120×120×25	96/112	65	21/18	0.22/0.18	43/48
FCF204A-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
FCF204-115C-C	115VAC	150×150×50	272/316	200	26/28	0.43/0.4	54/59
FCF204-115D-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF204-115E-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF204A-D1-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
FCF204-D2-C	120&230VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FCF204A-400A-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
FCF204-400B-C	400VAC	150×150×50	138/162	200	26/28	0.13/0.11	43/48
FCF204-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
FCF204-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FCF204A-12A-C	12VDC	120×120×38	180	120	7.2	0.6	48
FCF204-12B-C	12VDC	172×150×51	374	260	12	1	62
FCF204A-24A-C	24VDC	120×120×38	180	120	9.6	0.4	48
FCF204-24B-C	24VDC	172×150×51	374	260	12	0.5	48
FCF204A-48A-C	48VDC	120×120×38	180	120	9.6	0.2	48
FCF204-48B-C	48VDC	172×150×51	374	260	12	0.25	48



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-FC255: Exit Filter



### NTL-FCF255: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

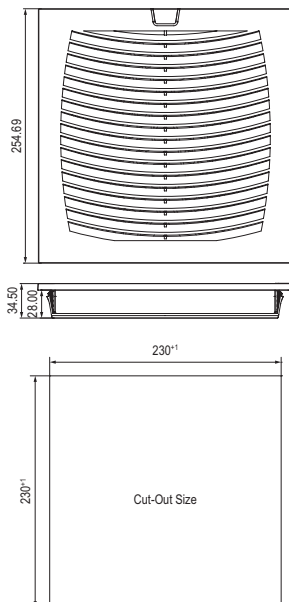
### Technical Data

NTL-FCF255	
Axial fan, ball bearing	service life L10 at +40 °C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	230×230 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed <sup>1</sup> .
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC255	-	without fan	-	-	-	-	-
FCF255-230A-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF255-230B-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255-230C-C	230VAC	Ø220×60	800/1000	500	48/63	0.23/0.28	63/66
FCF255-230D-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FCF255A-230E-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF255A-230F-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255A-230G-C	230VAC	180×180×65	586/671	380	42/50	0.2/0.24	63/68
FCF255-115A-C	115VAC	Ø220×60	800/1000	500	48/63	0.42	63/66
FCF255-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FCF255A-115C-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF255A-115D-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255A-115E-C	115VAC	180×180×65	586/671	380	42/50	0.42	63/68
FCF255A-D-C	120&230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255-400A-C	400VAC	Ø220×60	800/1000	550	48/63	0.25	63/66
FCF255-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FCF255A-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
FCF255A-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FCF255A-400E-C	400VAC	180×180×65	586/671	380	42/50	0.15	63/68
FCF255A-12A-C	12VDC	172×150×51	374	260	12	1	62
FCF255-12B-C	12VDC	200×200×60	1008	480	24	2	68
FCF255A-24A-C	24VDC	172×150×51	374	260	12	0.5	62
FCF255-24B-C	24VDC	200×200×60	1008	480	24	1	68
FCF255A-48A-C	48VDC	172×152×51	374	260	12	0.25	62
FCF255-48B-C	48VDC	200×200×60	1008	480	24	0.5	68

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-FC323: Exit Filter



### NTL-FCF323: Filter Fan



### Product Applications:

Out products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

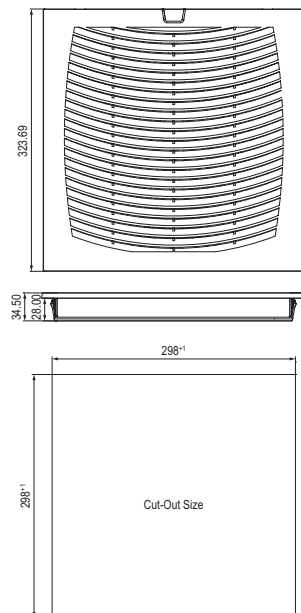
### Technical Data

NTL-FCF323	
Axial fan, ball bearing	service life L10 at +40 °C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	298×298 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed <sup>1</sup> .
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC323	-	without fan	-	-	-	-	-
FCF323-230A-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FCF323A-230B-C	230VAC	200×200×60	800/1000	480	48/63	0.23/0.28	63/66
FCF323A-230C-C	230VAC	Ø220×60	800/1000	550	48/63	0.23/0.28	63/66
FCF323A-230D-C	230VAC	225×225×80	1000/1150	700	72/80	0.33/0.35	63/66
FCF323-230E-C	230VAC	280×280×80	1200/1400	850	120/160	0.5/0.7	65/70
FCF323-115A-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FCF323A-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FCF323A-115C-C	115VAC	Ø220×60	800/1000	480	48/63	0.42	63/66
FCF323A-115D-C	115VAC	225×225×80	1000/1150	700	70/80	0.65/0.7	63/66
FCF323-115E-C	115VAC	280×280×80	1200/1400	850	120/160	1/1/1.4	65/70
FCF323-400A-C	400VAC	200×200×60	800/1000	400	60	0.2	63/66
FCF323A-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FCF323A-400C-C	400VAC	Ø220×60	800/1000	480	60	0.2	63/66
FCF323A-400D-C	400VAC	225×225×80	1000/1150	700	72/80	0.2	63/66
FCF323-400E-C	400VAC	280×280×80	1200/1400	850	120	0.36	65/70
FCF323A-12-C	12VDC	200×200×60	1008	700	24	2	68
FCF323A-24-C	24VDC	200×200×60	1008	700	24	1	68
FCF323A-48-C	48VDC	200×200×60	1008	700	24	0.5	68

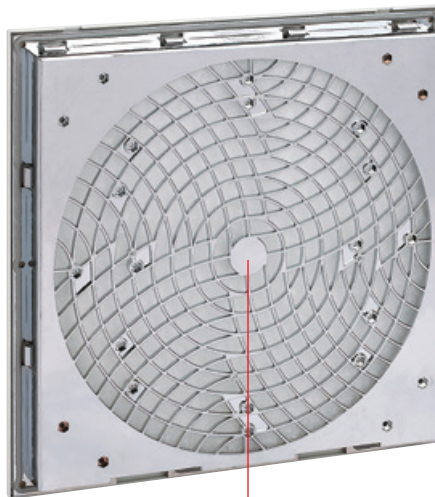
Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



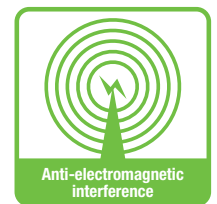
EMC filter is a kind of filter used in electronic equipment to suppress electromagnetic interference. Its role is to eliminate electromagnetic interference signals by changing the frequency characteristics of the signal to ensure electromagnetic compatibility between devices.

## Features:

1. **Suppression of interference:** The main function of EMC filter is to suppress electromagnetic interference signals to ensure electromagnetic compatibility between devices.
2. **Anti-interference ability:** EMC filter needs to have a strong anti-interference ability, able to withstand high-intensity electromagnetic interference signals, while keeping the filtering effect stable.
3. **Transition bandwidth:** The transition bandwidth of the EMC filter determines the filtering effect of signals of different frequencies in the filtering process, which needs to be selected and designed according to the specific application scenario.
4. **Dynamic range:** The dynamic range of the EMC filter determines whether it is distorted when processing strong interference signals, and whether the dynamic range of the signal can be retained.



with EMC function





### NTL-FN120-EMC: Exit Filter



Patent Number: ZL 2019 3 0322398.4

### NTL-FNF120-EMC: Filter Fan



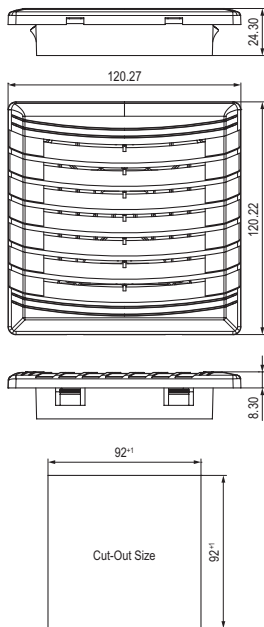
### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FNF120-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h fan body aluminium, rotor metal
Connection	2 stranded wires, 300mm
Enclosure cut-out	92×92 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function



### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN120-EMC	-	without fan	-	-	-	-	-
FNF120-EMC-230A-C	230VAC	80×80×25	30/41	24	14/12	0.07	27/30
FNF120-EMC-230B-C	230VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FNF120-EMC-230C-C	230VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FNF120-EMC-115A-C	115VAC	80×80×25	30/41	24	14/12	0.07	27/30
FNF120-EMC-115B-C	115VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FNF120-EMC-115C-C	115VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FNF120-EMC-D-C	120&230VAC	80×80×38	39/48	26	13/10	0.078/0.062	27/30
FNF120-EMC-12-C	12VDC	80×80×38	84	30	4.8	0.4	30
FNF120-EMC-24-C	24VDC	80×80×38	84	30	4.8	0.2	30
FNF120-EMC-48-C	48VDC	80×80×38	84	30	4.8	0.1	30

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



**NTL-FN152-EMC: Exit Filter**



Patent Number: ZL 2019 3 0322398.4

**NTL-FNF152-EMC: Filter Fan**



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

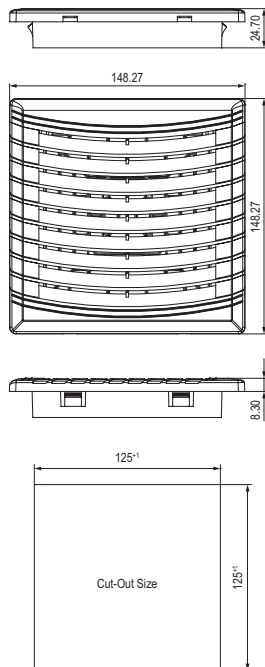
### Technical Data

NTL-FNF152-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Enclosure cut-out	125×125 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN152-EMC	-	without fan	-	-	-	-	-
FNF152-EMC-230A-C	230VAC	120×120×25	96/112	65	16	0.08	39/42
FNF152-EMC-230B-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
FNF152-EMC-115A-C	115VAC	120×120×25	96/112	65	16	0.16	39/42
FNF152-EMC-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
FNF152-EMC-D-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
FNF152-EMC-400-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
FNF152-EMC-12-C	12VDC	120×120×38	180	120	7.2	0.6	48
FNF152-EMC-24-C	24VDC	120×120×38	180	120	9.6	0.4	48
FNF152-EMC-48-C	48VDC	120×120×38	180	120	9.6	0.2	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.





**NTL-FN255-EMC: Exit Filter**



Patent Number: ZL 2019 3 0322398.4

**NTL-FNF255-EMC: Filter Fan**



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

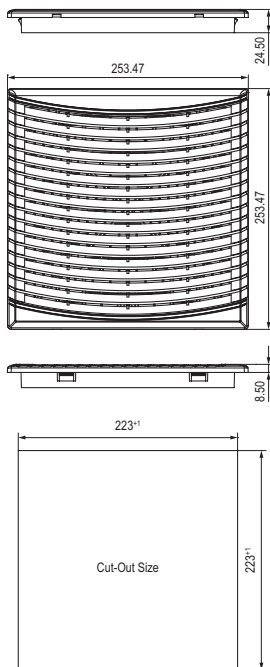
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FNF255-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	223×223 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN255-EMC	-	without fan	-	-	-	-	-
FNF255-EMC-230A-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FNF255-EMC-230B-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255-EMC-230C-C	230VAC	Ø220×60	800/1000	500	48/63	0.23/0.28	63/66
FNF255-EMC-230D-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FNF255A-EMC-230E-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FNF255A-EMC-230F-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255A-EMC-230G-C	230VAC	180×180×65	586/671	380	42/50	0.2/0.24	63/68
FNF255-EMC-115A-C	115VAC	Ø220×60	800/1000	500	48/63	0.42	63/66
FNF255-EMC-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FNF255A-EMC-115C-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FNF255A-EMC-115D-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255A-EMC-115E-C	115VAC	180×180×65	586/671	380	42/50	0.42	63/68
FNF255A-EMC-D-C	120&230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FNF255-EMC-400A-C	400VAC	Ø220×60	800/1000	550	48/63	0.25	63/66
FNF255-EMC-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FNF255A-EMC-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
FNF255A-EMC-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FNF255A-EMC-400E-C	400VAC	180×180×65	586/671	380	42/50	0.15	63/68
FNF255A-EMC-12A-C	12VDC	172×150×51	374	260	12	1	62
FNF255-EMC-12B-C	12VDC	200×200×60	1008	480	24	2	68
FNF255A-EMC-24A-C	24VDC	172×150×51	374	260	12	0.5	62
FNF255-EMC-24B-C	24VDC	200×200×60	1008	480	24	1	68
FNF255A-EMC-48A-C	48VDC	172×152×51	374	260	12	0.25	62
FNF255-EMC-48B-C	48VDC	200×200×60	1008	480	24	0.5	68



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

**NTL-FN323-EMC: Exit Filter**



Patent Number: ZL 2019 3 0322398.4

**NTL-FNF323-EMC: Filter Fan**



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

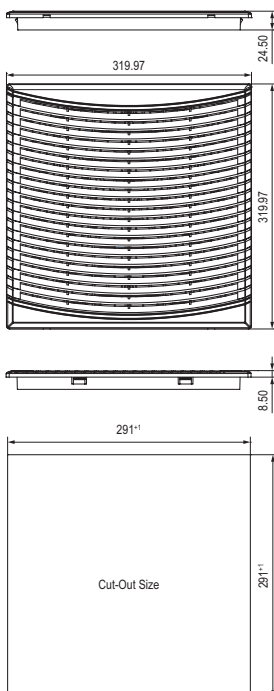
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FNF323-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	291×291 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FN323-EMC	-	without fan	-	-	-	-	-
FNF323-EMC-230A-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FNF323A-EMC-230B-C	230VAC	200×200×60	800/1000	480	48/63	0.23/0.28	63/66
FNF323A-EMC-230C-C	230VAC	Ø220×60	800/1000	550	48/63	0.23/0.28	63/66
FNF323A-EMC-230D-C	230VAC	225×225×80	1000/1150	700	72/80	0.33/0.35	63/66
FNF323-EMC-230E-C	230VAC	280×280×80	1200/1400	850	120/160	0.5/0.7	65/70
FNF323-EMC-115A-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FNF323A-EMC-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FNF323A-EMC-115C-C	115VAC	Ø220×60	800/1000	480	48/63	0.42	63/66
FNF323A-EMC-115D-C	115VAC	225×225×80	1000/1150	700	70/80	0.65/0.7	63/66
FNF323-EMC-115E-C	115VAC	280×280×80	1200/1400	850	120/160	1/1/1.4	65/70
FNF323-EMC-400A-C	400VAC	200×200×60	800/1000	400	60	0.2	63/66
FNF323A-EMC-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FNF323A-EMC-400C-C	400VAC	Ø220×60	800/1000	480	60	0.2	63/66
FNF323A-EMC-400D-C	400VAC	225×225×80	1000/1150	700	72/80	0.2	63/66
FNF323-EMC-400E-C	400VAC	280×280×80	1200/1400	850	120	0.36	65/70
FNF323A-EMC-12-C	12VDC	200×200×60	1008	700	24	2	68
FNF323A-EMC-24-C	24VDC	200×200×60	1008	700	24	1	68
FNF323A-EMC-48-C	48VDC	200×200×60	1008	700	24	0.5	68



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



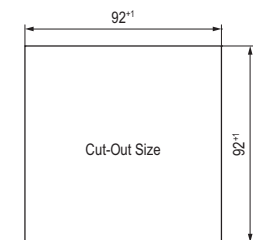
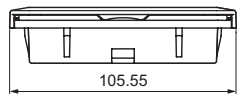
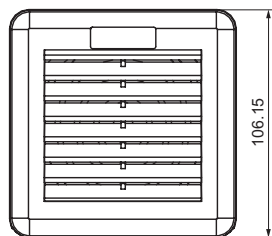
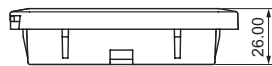
### NTL-SF106-EMC: Exit Filter



### NTL-SFF106-EMC: Filter Fan



Slide UP and DOWN



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-SFF106-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h fan body aluminium, rotor metal
Connection	2 stranded wires, 300mm
Enclosure cut-out	92×92 <sup>+1</sup> mm
Mounting frame	fast fixing with clips for different size thickness of cabinet and enclosure, no need screw fixing
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF106-EMC	-	without fan	-	-	-	-	-
SFF106-EMC-230A-C	230VAC	80×80×25	30/41	24	14/12	0.07	27/30
SFF106-EMC-230B-C	230VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
SFF106-EMC-115A-C	115VAC	80×80×25	30/41	24	14/12	0.07	27/30
SFF106-EMC-115B-C	115VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
SFF106-EMC-D-C	120&230VAC	80×80×38	39/48	26	13/10	0.078/0.062	27/30
SFF106-EMC-12-C	12VDC	80×80×38	84	30	4.8	0.4	30
SFF106-EMC-24-C	24VDC	80×80×38	84	30	4.8	0.2	30
SFF106-EMC-48-C	48VDC	80×80×38	84	30	4.8	0.1	30

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

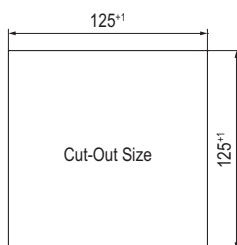
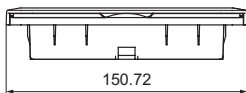
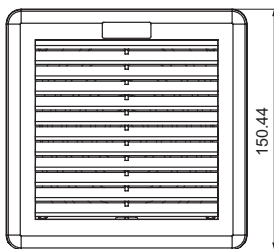
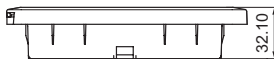
### NTL-SF150-EMC: Exit Filter



### NTL-SFF150-EMC: Filter Fan



Slide UP and DOWN



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-SFF150-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Enclosure cut-out	125×125 <sup>+1</sup> mm
Mounting frame	fast fixing with clips for different size thickness of cabinet and enclosure, no need screw fixing
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF150-EMC	-	without fan	-	-	-	-	-
SFF150-EMC-230A-C	230VAC	120×120×25	96/112	65	16	0.08	39/42
SFF150-EMC-230B-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
SFF150-EMC-115A-C	115VAC	120×120×25	96/112	65	16	0.16	39/42
SFF150-EMC-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
SFF150-EMC-D-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
SFF150-EMC-400-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
SFF150-EMC-12-C	12VDC	120×120×38	180	120	7.2	0.6	48
SFF150-EMC-24-C	24VDC	120×120×38	180	120	9.6	0.4	48
SFF150-EMC-48-C	48VDC	120×120×38	180	120	9.6	0.2	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-SF200-EMC: Exit Filter



### NTL-SFF200-EMC: Filter Fan



Slide UP and DOWN

### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

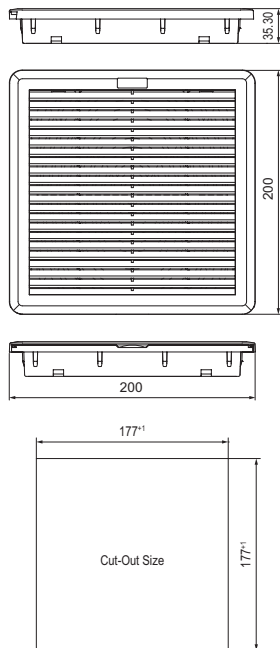
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-SFF200-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 37,000 h, fan body aluminium, rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	177×177 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF200-EMC	-	without fan	-	-	-	-	-
SFF200A-EMC-230A-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
SFF200A-EMC-230B-C	230VAC	120×120×25	96/112	65	14/12	0.07	43/48
SFF200-EMC-230C-C	230VAC	150×150×50	272/316	200	26/28	0.23/0.2	54/59
SFF200-EMC-230D-C	230VAC	Ø172×55	272/316	200	26/28	0.23/0.2	52/62
SFF200-EMC-230E-C	230VAC	172×150×51	272/316	200	26/28	0.23/0.2	52/62
SFF200A-EMC-115A-C	115VAC	120×120×25	96/112	65	21/18	0.22/0.18	43/48
SFF200A-EMC-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
SFF200-EMC-115C-C	115VAC	150×150×50	272/316	200	26/28	0.43/0.4	54/59
SFF200-EMC-115D-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF200-EMC-115E-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF200A-EMC-D1-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
SFF200-EMC-D2-C	120&230VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
SFF200A-EMC-400A-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
SFF200-EMC-400B-C	400VAC	150×150×50	138/162	200	26/28	0.13/0.11	43/48
SFF200-EMC-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
SFF200-EMC-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
SFF200A-EMC-12A-C	12VDC	120×120×38	180	120	7.2	0.6	48
SFF200-EMC-12B-C	12VDC	172×150×51	374	260	12	1	62
SFF200A-EMC-24A-C	24VDC	120×120×38	180	120	9.6	0.4	48
SFF200-EMC-24B-C	24VDC	172×150×51	374	260	12	0.5	48
SFF200A-EMC-48A-C	48VDC	120×120×38	180	120	9.6	0.2	48
SFF200-EMC-48B-C	48VDC	172×152×51	374	260	12	0.25	48



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-SF250-EMC: Exit Filter



### NTL-SFF250-EMC: Filter Fan



Slide UP and DOWN

### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

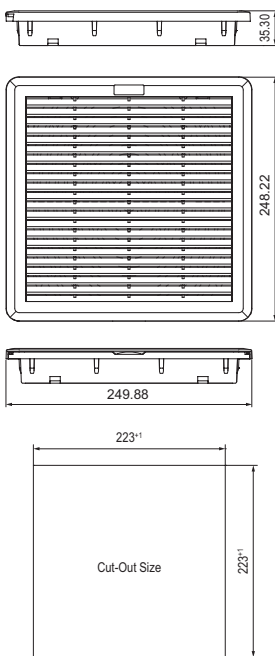
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-SFF250-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	223×223 <sup>+1</sup> mm
Mounting frame	fast fixing with clips for different size thickness of cabinet and enclosure, no need screw fixing
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF250-EMC	-	without fan	-	-	-	-	-
SFF250-EMC-230A-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF250-EMC-230B-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250-EMC-230C-C	230VAC	Ø220×60	800/1000	500	48/63	0.23/0.28	63/66
SFF250-EMC-230D-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
SFF250A-EMC-230E-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF250A-EMC-230F-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250A-EMC-230G-C	230VAC	180×180×65	586/671	380	42/50	0.2/0.24	63/68
SFF250-EMC-115A-C	115VAC	Ø220×60	800/1000	500	48/63	0.42	63/66
SFF250-EMC-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
SFF250A-EMC-115C-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
SFF250A-EMC-115D-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250A-EMC-115E-C	115VAC	180×180×65	586/671	380	42/50	0.42	63/68
SFF250A-EMC-D-C	120&230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
SFF250-EMC-400A-C	400VAC	Ø220×60	800/1000	550	48/63	0.25	63/66
SFF250-EMC-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
SFF250A-EMC-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
SFF250A-EMC-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
SFF250A-EMC-400E-C	400VAC	180×180×65	586/671	380	42/50	0.15	63/68
SFF250A-EMC-12A-C	12VDC	172×150×51	374	260	12	1	62
SFF250-EMC-12B-C	12VDC	200×200×60	1008	480	24	2	68
SFF250A-EMC-24A-C	24VDC	172×150×51	374	260	12	0.5	62
SFF250-EMC-24B-C	24VDC	200×200×60	1008	480	24	1	68
SFF250A-EMC-48A-C	48VDC	172×152×51	374	260	12	0.25	62
SFF250-EMC-48B-C	48VDC	200×200×60	1008	480	24	0.5	68



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-SF322-EMC: Exit Filter



### NTL-SFF322-EMC: Filter Fan



Slide UP and DOWN

### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

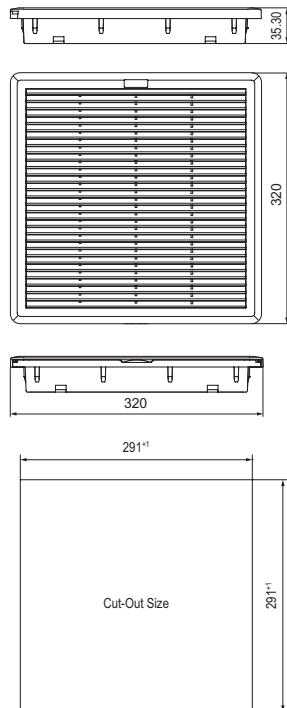
#### NTL-SFF322-EMC

Axial fan, ball bearing	service life L10 at +40 °C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	291×291 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
SF322-EMC	-	without fan	-	-	-	-	-
SFF322-EMC-230A-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
SFF322A-EMC-230B-C	230VAC	200×200×60	800/1000	480	48/63	0.23/0.28	63/66
SFF322A-EMC-230C-C	230VAC	Ø220×60	800/1000	550	48/63	0.23/0.28	63/66
SFF322A-EMC-230D-C	230VAC	225×225×80	1000/1150	700	72/80	0.33/0.35	63/66
SFF322-EMC-230E-C	230VAC	280×280×80	1200/1400	850	120/160	0.5/0.7	65/70
SFF322-EMC-115A-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
SFF322A-EMC-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
SFF322A-EMC-115C-C	115VAC	Ø220×60	800/1000	480	48/63	0.42	63/66
SFF322A-EMC-115D-C	115VAC	225×225×80	1000/1150	700	70/80	0.65/0.7	63/66
SFF322-EMC-115E-C	115VAC	280×280×80	1200/1400	850	120/160	1/1/1.4	65/70
SFF322-EMC-400A-C	400VAC	200×200×60	800/1000	400	60	0.2	63/66
SFF322A-EMC-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
SFF322A-EMC-400C-C	400VAC	Ø220×60	800/1000	480	60	0.2	63/66
SFF322A-EMC-400D-C	400VAC	225×225×80	1000/1150	700	72/80	0.2	63/66
SFF322-EMC-400E-C	400VAC	280×280×80	1200/1400	850	120	0.36	65/70
SFF322A-EMC-12-C	12VDC	200×200×60	1008	700	24	2	68
SFF322A-EMC-24-C	24VDC	200×200×60	1008	700	24	1	68
SFF322A-EMC-48-C	48VDC	200×200×60	1008	700	24	0.5	68

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-FC120-EMC: Exit Filter



### NTL-FCF120-EMC: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

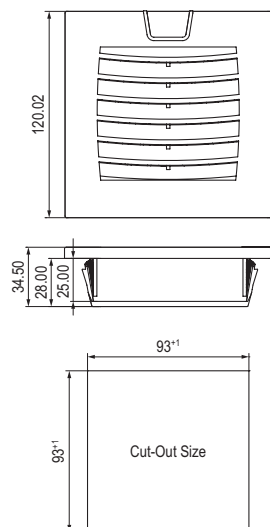
### Technical Data

NTL-FCF120-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h fan body aluminium, rotor metal
Connection	2 stranded wires, 300mm
Enclosure cut-out	93×93mm <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed.
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC120-EMC	-	without fan	-	-	-	-	-
FCF120-EMC-230A-C	230VAC	80×80×25	30/41	24	14/12	0.07	27/30
FCF120-EMC-230B-C	230VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FCF120-EMC-230C-C	230VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FCF120-EMC-115A-C	115VAC	80×80×25	30/41	24	14/12	0.07	27/30
FCF120-EMC-115B-C	115VAC	80×80×38	39/48	24	13/10	0.078/0.062	27/30
FCF120-EMC-115C-C	115VAC	92×92×38	66/78	26	14/11	0.09/0.07	27/30
FCF120-EMC-D-C	120&230VAC	80×80×38	39/48	26	13/10	0.078/0.062	27/30
FCF120-EMC-12-C	12VDC	80×80×38	84	30	4.8	0.4	30
FCF120-EMC-24-C	24VDC	80×80×38	84	30	4.8	0.2	30
FCF120-EMC-48-C	48VDC	80×80×38	84	30	4.8	0.1	30

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-FC152-EMC: Exit Filter



### NTL-FCF152-EMC: Filter Fan



#### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

#### Technical Data

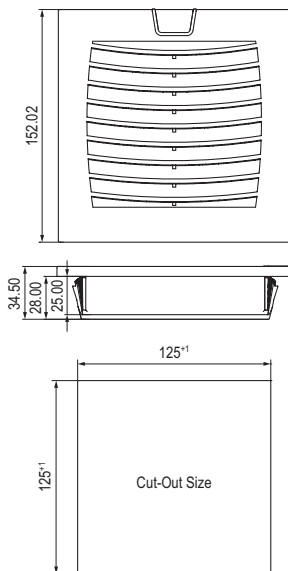
##### NTL-FCF152-EMC

Axial fan, ball bearing	service life L10 at +40 °C (+104 °F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Enclosure cut-out	125×125 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed.
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

#### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC152-EMC	-	without fan	-	-	-	-	-
FCF152-EMC-230A-C	230VAC	120×120×25	96/112	65	16	0.08	39/42
FCF152-EMC-230B-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
FCF152-EMC-115A-C	115VAC	120×120×25	96/112	65	16	0.16	39/42
FCF152-EMC-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
FCF152-EMC-D-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
FCF152-EMC-400-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
FCF152-EMC-12-C	12VDC	120×120×38	180	120	7.2	0.6	48
FCF152-EMC-24-C	24VDC	120×120×38	180	120	9.6	0.4	48
FCF152-EMC-48-C	48VDC	120×120×38	180	120	9.6	0.2	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.





### NTL-FC204-EMC: Exit Filter



### NTL-FCF204-EMC: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

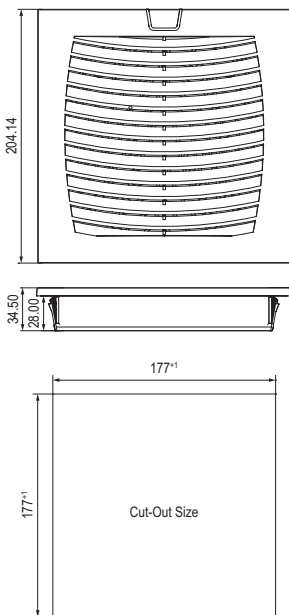
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FCF204-EMC	
Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 65,000h fan body aluminium, rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	177×177 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). Additional use of screws possible if needed <sup>1</sup> .
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC204-EMC	-	without fan	-	-	-	-	-
FCF204A-EMC-230A-C	230VAC	120×120×38	138/162	100	21/18	0.12	43/48
FCF204A-EMC-230B-C	230VAC	120×120×25	96/112	65	14/12	0.07	43/48
FCF204-EMC-230C-C	230VAC	150×150×50	272/316	200	26/28	0.23/0.2	54/59
FCF204-EMC-230D-C	230VAC	Ø172×55	272/316	200	26/28	0.23/0.2	52/62
FCF204-EMC-230E-C	230VAC	172×150×51	272/316	200	26/28	0.23/0.2	52/62
FCF204A-EMC-115A-C	115VAC	120×120×25	96/112	65	21/18	0.22/0.18	43/48
FCF204A-EMC-115B-C	115VAC	120×120×38	138/162	100	21/18	0.22/0.18	43/48
FCF204-EMC-115C-C	115VAC	150×150×50	272/316	200	26/28	0.43/0.4	54/59
FCF204-EMC-115D-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF204-EMC-115E-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF204A-EMC-D1-C	120&230VAC	120×120×38	138/162	100	19/15	0.18/0.12	43/48
FCF204-EMC-D2-C	120&230VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FCF204A-EMC-400A-C	400VAC	120×120×38	138/162	100	21/18	0.09/0.07	43/48
FCF204-EMC-400B-C	400VAC	150×150×50	138/162	200	26/28	0.13/0.11	43/48
FCF204-EMC-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
FCF204-EMC-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FCF204A-EMC-12A-C	12VDC	120×120×38	180	120	7.2	0.6	48
FCF204-EMC-12B-C	12VDC	172×150×51	374	260	12	1	62
FCF204A-EMC-24A-C	24VDC	120×120×38	180	120	9.6	0.4	48
FCF204-EMC-24B-C	24VDC	172×150×51	374	260	12	0.5	48
FCF204A-EMC-48A-C	48VDC	120×120×38	180	120	9.6	0.2	48
FCF204-EMC-48B-C	48VDC	172×150×51	374	260	12	0.25	48



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.



### NTL-FC255-EMC: Exit Filter



### NTL-FCF255-EMC: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

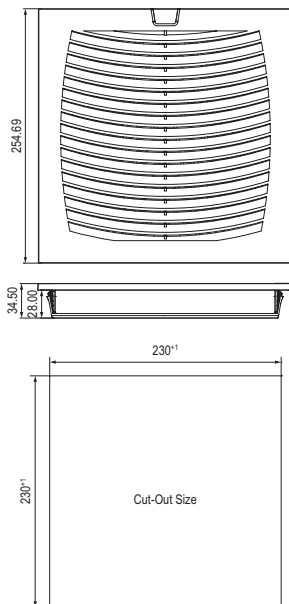
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FCF255-EMC	
Axial fan, ball bearing	service life L10 at +40 °C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	230×230 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). additional use of screws possible if needed <sup>1</sup> .
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC255-EMC	-	without fan	-	-	-	-	-
FCF255-EMC-230A-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF255-EMC-230B-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255-EMC-230C-C	230VAC	Ø220×60	800/1000	500	48/63	0.23/0.28	63/66
FCF255-EMC-230D-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FCF255A-EMC-230E-C	230VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF255A-EMC-230F-C	230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255A-EMC-230G-C	230VAC	180×180×65	586/671	380	42/50	0.2/0.24	63/68
FCF255-EMC-115A-C	115VAC	Ø220×60	800/1000	500	48/63	0.42	63/66
FCF255-EMC-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FCF255A-EMC-115C-C	115VAC	Ø172×55	272/316	200	26/28	0.43/0.4	52/62
FCF255A-EMC-115D-C	115VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255A-EMC-115E-C	115VAC	180×180×65	586/671	380	42/50	0.42	63/68
FCF255A-EMC-D-C	120&230VAC	172×150×51	272/316	200	26/28	0.43/0.4	52/62
FCF255-EMC-400A-C	400VAC	Ø220×60	800/1000	550	48/63	0.25	63/66
FCF255-EMC-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FCF255A-EMC-400C-C	400VAC	Ø172×55	272/316	200	26/28	0.13/0.11	52/62
FCF255A-EMC-400D-C	400VAC	172×150×51	272/316	200	26/28	0.13/0.11	52/62
FCF255A-EMC-400E-C	400VAC	180×180×65	586/671	380	42/50	0.15	63/68
FCF255A-EMC-12A-C	12VDC	172×150×51	374	260	12	1	62
FCF255-EMC-12B-C	12VDC	200×200×60	1008	480	24	2	68
FCF255A-EMC-24A-C	24VDC	172×150×51	374	260	12	0.5	62
FCF255-EMC-24B-C	24VDC	200×200×60	1008	480	24	1	68
FCF255A-EMC-48A-C	48VDC	172×152×51	374	260	12	0.25	62
FCF255-EMC-48B-C	48VDC	200×200×60	1008	480	24	0.5	68



Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-FC323-EMC: Exit Filter



### NTL-FCF323-EMC: Filter Fan



### Product Applications:

Our products are widely used in the control panels, junction boxes, power distribution box, automation equipment, electronic and power device, welding machine, packing etc.

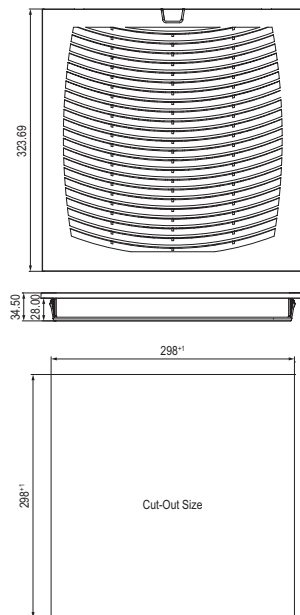
Normal Color: RAL 7035, RAL 7032, (other color can be customer made)

### Technical Data

NTL-FCF323-EMC	
Axial fan, ball bearing	service life L10 at +40 °C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm <sup>2</sup> , clamping torque 0.8Nm max.
Enclosure cut-out	298×298 <sup>+1</sup> mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1-4mm). Additional use of screws possible if needed <sup>1</sup> .
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-25 to +65°C (-13 to +149°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Function	with EMC function

### Technical Parameters

Art. No.	Power supply	Fan size (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Air flow rate (with mat) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
FC323-EMC	-	without fan	-	-	-	-	-
FCF323-EMC-230A-C	230VAC	200×200×60	800/1000	400	48/63	0.23/0.28	63/66
FCF323A-EMC-230B-C	230VAC	200×200×60	800/1000	480	48/63	0.23/0.28	63/66
FCF323A-EMC-230C-C	230VAC	Ø220×60	800/1000	550	48/63	0.23/0.28	63/66
FCF323A-EMC-230D-C	230VAC	225×225×80	1000/1150	700	72/80	0.33/0.35	63/66
FCF323-EMC-230E-C	230VAC	280×280×80	1200/1400	850	120/160	0.5/0.7	65/70
FCF323-EMC-115A-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FCF323A-EMC-115B-C	115VAC	200×200×60	800/1000	480	48/63	0.42	63/66
FCF323A-EMC-115C-C	115VAC	Ø220×60	800/1000	480	48/63	0.42	63/66
FCF323A-EMC-115D-C	115VAC	225×225×80	1000/1150	700	70/80	0.65/0.7	63/66
FCF323-EMC-115E-C	115VAC	280×280×80	1200/1400	850	120/160	1/1/1.4	65/70
FCF323-EMC-400A-C	400VAC	200×200×60	800/1000	400	60	0.2	63/66
FCF323A-EMC-400B-C	400VAC	200×200×60	800/1000	480	60	0.2	63/66
FCF323A-EMC-400C-C	400VAC	Ø220×60	800/1000	480	60	0.2	63/66
FCF323A-EMC-400D-C	400VAC	225×225×80	1000/1150	700	72/80	0.2	63/66
FCF323-EMC-400E-C	400VAC	280×280×80	1200/1400	850	120	0.36	65/70
FCF323A-EMC-12-C	12VDC	200×200×60	1008	700	24	2	68
FCF323A-EMC-24-C	24VDC	200×200×60	1008	700	24	1	68
FCF323A-EMC-48-C	48VDC	200×200×60	1008	700	24	0.5	68



### NTL-F152-W: Exit Filter



### NTL-FF152-W: Filter Fan



Fan filters are used to provide an optimum climate in enclosures and cabinets with electrical/electronic components. The interior temperature of an enclosure can be reduced by channelling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting airflow prevents formation of localised hot pockets in installations and protects electronic components from overheating.

The Fan filter series uses a new air-flap outlet technology for the air outlet and thus reaches a high degree of airflow. A ratchet mechanism is used for mounting and provides high stability and tightness. It is a standard installation with a filter fan in the lower part of the enclosure which ensures that fresh air is out of the enclosure (airflow direction "Out"). This system consists of a filter fan and exit filter.

### Technical Data

#### NTL-FF152-W

Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Enclosure cut-out	125×125 <sup>+1</sup> mm
Mounting frame	screw fixing type, easy to open the cover
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Note	other voltages on request

### Technical Parameters

Art. No.	Power supply	Net weight (kg)	Fan size matched (mm)	Air flow rate (free blow) (m <sup>3</sup> /h)	Power consumption (W)	Current consumption (A)	Noise level (dBA)
F152W	-	0.156	without fan	-	-	-	-
152W230A	230VAC	0.53	120×120×25	96/112	14/12	0.07	39/42
152W230B	230VAC	0.64	120×120×38	138/162	19/15	0.11/0.105	43/48
152W115A	115VAC	0.53	120×120×25	96/112	14/12	0.14	39/42
152W115B	115VAC	0.64	120×120×38	138/162	17/14	0.24/0.198	43/48
152W12	12VDC	0.4068	120×120×38	179.76	7.2	0.6	48
152W24	24VDC	0.4068	120×120×38	179.76	9.6	0.4	48

Normally is airflow direction "Out", if you need airflow direction "In", when place order, please advice.

### NTL-F97-W: Exit Filter



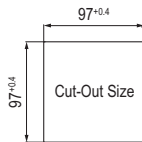
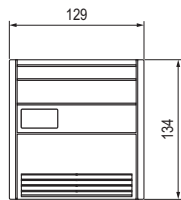
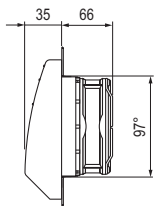
### NTL-FF97-W: Filter Fan



Fan filters are used to provide an optimum climate in enclosures. The interior temperature of an enclosure can be reduced by channelling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting air flow prevents formation of localised hot pockets and protects the electronic components from overheating. These filter fans are intended for outdoor use. The plastic used for the hood is highly UV light resistant.

### Technical Data

NTL-FF97-W	
Axial fan, ball bearing	service life 50,000h at +25°C (+77°F), 65% RH fan body aluminium, rotor plastic
Connection	2 wires with pressure clamps 2.5mm <sup>2</sup> , length 100mm
Mounting frame	with double-sided industrial adhesive band for fixing to the outside of enclosure; certain operating circumstances can make the additional use of screws necessary (see drilling template); a template for the enclosure cut-out is included in the delivery of the filter fans
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-10 to +70°C (+14 to +158°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Enclosure cut-out	97×97mm <sup>+0.4</sup>
Protection class	IP55 / I (earthed)



### Technical Parameters

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Power consumption	Weight (approx.)
FF97-00	230VAC, 50Hz	21m <sup>3</sup> /h	16m <sup>3</sup> /h	16W	0.6kg
FF97-01	120VAC, 60Hz	24m <sup>3</sup> /h	18m <sup>3</sup> /h	13W	0.6kg

<sup>1</sup> Using fine filter mats type F5/M5 increases the protection type to IP55, but reduces the air volume

### Exit Filter F97

Art. No.	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Filter mat
F97	16mm	97×97mm <sup>+0.4</sup>	0.3kg	G4 acc. to DIN EN 779, filtering degree 94%

### NTL-F125-W: Exit Filter



### NTL-FF125-W: Filter Fan

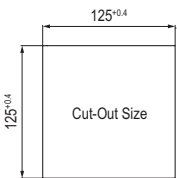
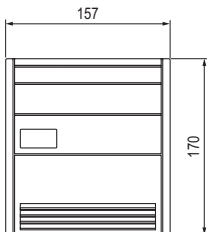
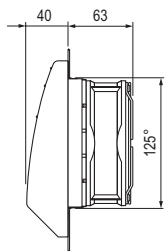


Fan filters are used to provide an optimum climate in enclosures. The interior temperature of an enclosure can be reduced by channelling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting air flow prevents formation of localised hot pockets and protects the electronic components from overheating. These filter fans are intended for outdoor use. The plastic used for the hood is highly UV light resistant.

### Technical Data

#### NTL-FF125-W

Axial fan, ball bearing	service life 50,000h at +25°C (+77°F), 65% RH fan body aluminium, rotor plastic
Connection	2 wires with pressure clamps 2.5mm <sup>2</sup> , length 100mm
Mounting frame	with double-sided industrial adhesive band for fixing to the outside of enclosure; certain operating circumstances can make the additional use of screws necessary (see drilling template); a template for the enclosure cut-out is included in the delivery of the filter fans
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material conform to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-10 to +70°C (+14 to +158°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Enclosure cut-out	125×125mm <sup>+0.4</sup>
Protection class	IP55 / I (earthed)



### Technical Parameters

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Power consumption	Weight (approx.)
FF125-00	230VAC, 50Hz	80m <sup>3</sup> /h	60m <sup>3</sup> /h	23W	1.0kg
FF125-01	120VAC, 60Hz	63m <sup>3</sup> /h	48m <sup>3</sup> /h	15W	1.0kg

<sup>1</sup> Using fine filter mats type F5/M5 increases the protection type to IP55, but reduces the air volume

### Exit Filter F125

Art. No.	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Filter mat
F125	16mm	125×125mm <sup>+0.4</sup>	0.4kg	G4 acc. to DIN EN 779, filtering degree 94%

**NTL-F176-W: Exit Filter**



**NTL-FF176-W: Filter Fan**



Fan filters are used to provide an optimum climate in enclosures. The interior temperature of an enclosure can be reduced by channelling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting air flow prevents formation of localised hot pockets and protects the electronic components from overheating. These filter fans are intended for outdoor use. The plastic used for the hood is highly UV light resistant.

### Technical Data

#### NTL-FF176-W

Axial fan, ball bearing	service life 50,000h at +25°C (+77°F), 65% RH fan body aluminium, rotor plastic
Connection	2 wires with pressure clamps 2.5mm <sup>2</sup> , length 100mm
Mounting frame	with double-sided industrial adhesive band for fixing to the outside of enclosure; certain operating circumstances can make the additional use of screws necessary (see drilling template); a template for the enclosure cut-out is included in the delivery of the filter fans
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	new ABS material confirm to RoHS, fireproof or not fireproof can be choose
Operating/Storage temperature	-10 to +70°C (+14 to +158°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Enclosure cut-out	176×176mm <sup>+0.4</sup>
Protection class	IP55 / I (earthed)

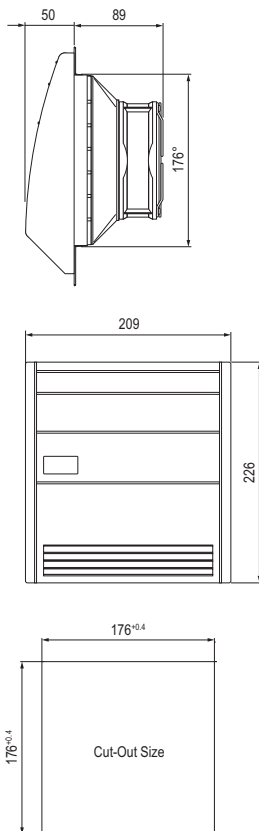
### Technical Parameters

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Power consumption	Weight (approx.)
FF176-00	230VAC, 50Hz	90m <sup>3</sup> /h	70m <sup>3</sup> /h	23W	1.3kg
FF176-01	120VAC, 60Hz	117m <sup>3</sup> /h	78m <sup>3</sup> /h	15W	1.3kg

<sup>1</sup> Using fine filter mats type F5/M5 increases the protection type to IP55, but reduces the air volume

### Exit Filter F176

Art. No.	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Filter mat
F176	16mm	176×176mm <sup>+0.4</sup>	0.6kg	G4 acc. to DIN EN 779, filtering degree 94%





**EF 118: Exit Filter**



**FF 018: Filter Fan**



Fan filters are used to provide an optimum climate in enclosures. The interior temperature of an enclosure can be reduced by channelling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting air flow prevents formation of localised hot pockets and protects the electronic components from overheating. These filter fans are intended for indoor use. The plastic used for the hood is highly UV light resistant.

### Technical Data

CE RoHS ISO9001 Patent

FF 018	
Axial fan, ball bearing	service life 50,000h at +25°C (+77°F), 65% RH fan body aluminium, rotor plastic
Connection	2 wires with pressure clamps 2.5mm <sup>2</sup> , length 100mm
Casing (filter fan and exit filter)	plastic according to UL94 V-0, light grey
Hood (filter fan and exit filter)	plastic according to UL94 V-0, light grey; UV light resistant according to UL746C (f1)
Mounting frame	with double-sided industrial adhesive band for fixing to the outside of enclosure; certain operating circumstances can make the additional use of screws necessary (see drilling template); a template for the enclosure cut-out is included in the delivery of the filter fans
Filter mat	G4 acc. to DIN EN 779, filtering degree 94%
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH, reusable - cleaning by washing or vacuuming
Operating/Storage temperature	-10 to +70°C (+14 to +158°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Enclosure cut-out	01800.0-00 / 01800.0-01: 97×97mm <sup>+0.4</sup> 01800.1-00 / 01800.1-01: 125×125mm <sup>+0.4</sup> 01800.2-00 / 01800.2-01: 176×176mm <sup>+0.4</sup>
Protection class	IP55 / I (earthed)

### Technical Parameters

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Power consumption	Weight (approx.)
01800.0-00	230VAC, 50Hz	21m <sup>3</sup> /h	16m <sup>3</sup> /h	16W	0.6kg
01801.0-00	230VAC, 50Hz	80m <sup>3</sup> /h	60m <sup>3</sup> /h	23W	1.0kg
01802.0-00	230VAC, 50Hz	90m <sup>3</sup> /h	70m <sup>3</sup> /h	23W	1.3kg
01800.0-01	120VAC, 60Hz	24m <sup>3</sup> /h	18m <sup>3</sup> /h	13W	0.6kg
01801.0-01	120VAC, 60Hz	63m <sup>3</sup> /h	48m <sup>3</sup> /h	15W	1.0kg
01802.0-01	120VAC, 60Hz	117m <sup>3</sup> /h	78m <sup>3</sup> /h	15W	1.3kg

<sup>1</sup> Using fine filter mats type F5/M5 increases the protection type to IP55, but reduces the air volume

### Exit Filter EF 118

Art. No.	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Filter mat
11800.0-00	16mm	97×97mm <sup>+0.4</sup>	0.3kg	G4 acc. to DIN EN 779, filtering degree 94%
11801.0-00	16mm	125×125mm <sup>+0.4</sup>	0.4kg	G4 acc. to DIN EN 779, filtering degree 94%
11802.0-00	16mm	176×176mm <sup>+0.4</sup>	0.6kg	G4 acc. to DIN EN 779, filtering degree 94%

### Time-saving assembly and maintenance

Natural's fan filters are easily installed by one person from outside the cabinet.

1.) Make cut-out in the cabinet wall. The cut edge of the cabinet opening should be free of dirt, filings and grease. A template for the enclosure cut-out is included in the delivery of the fan filter.

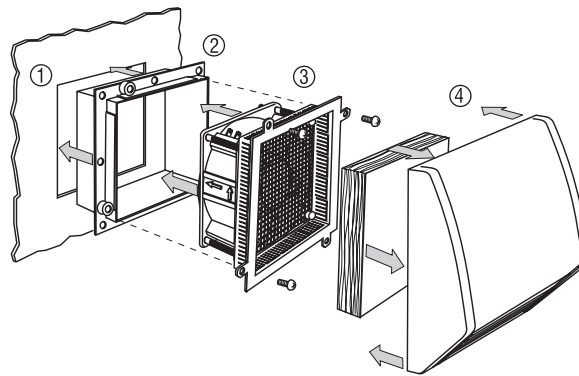
2.) Remove protective film from the sealing strips on the mounting frame. Press mounting frame into the cabinet opening. The frame stays permanently in the cabinet. (For size 176mm and up we recommend additional screw fixing.)

3.) Electrically connect the axial fan using the clip connectors. Push the unit into the mounting frame.

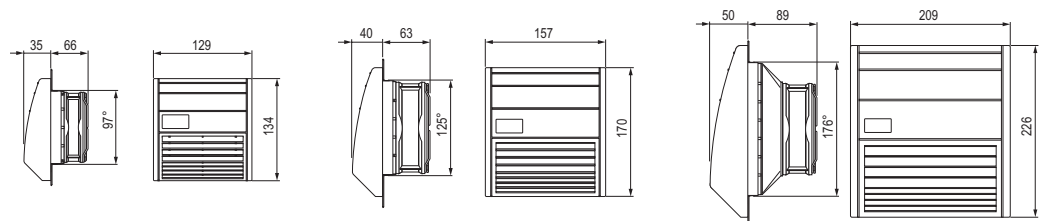
Fix using screws.

4.) Insert the filter mat in the hood. Clip on. Finished.

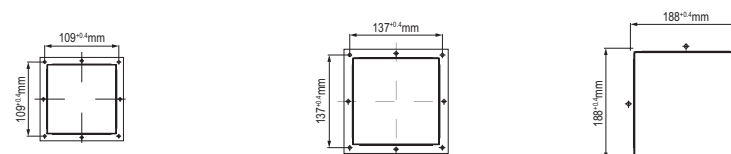
Changing the filter mat or fan is quickly done by one person. To change the filter mat simply remove the filter hood, insert the new mat and snap the hood back again. No tools required. Maintenance of the fan can easily be done without removing the mounting frame (2).



### Technical Drawings



### Drilling Template For Mounting Frame



# Lighting

Lamp, Connectors



CE RoHS ISO9001 Patent

### LED 025



Patent Number: ZL 2013 3 0172682.0

- Wide voltage range
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- Daisy chain
- On/off switch
- Magnet, screw

The lamp series LED 025 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 5 lamps to be connected to each other. Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs the lamp can quickly be connected.

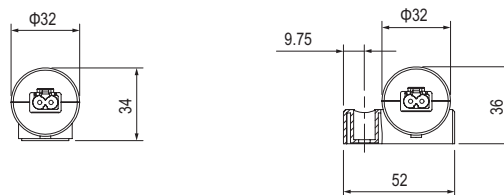
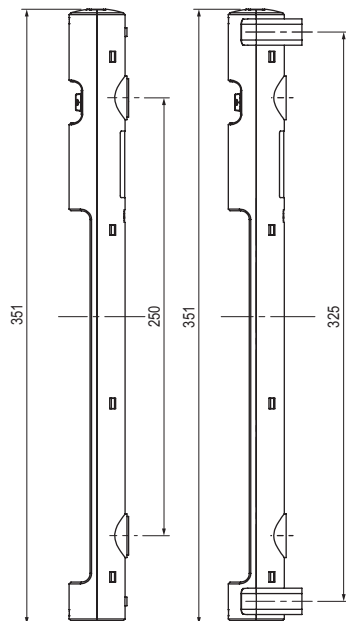
### Technical Data

CE RoHS ISO9001 Patent

LED 025	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock AC: max. 2.5A / 240VAC, color: white DC: max. 2.5A / 60VDC, color: blue
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

**Mounting options:** The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025 with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025 can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.



Art. No.	Fixing type	Switch	Operating voltage
02540.0-00	Magnet fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)
02540.0-01	Screw fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)

<sup>1</sup> approx. 5 min. fixed switch-on duration

### Connectors



244356 / 244357



244358 / 244359



264057



264058

### ACCESSORIES

Connectors and cables for electrical connection are not included in the delivery of the LED 025. These parts can be ordered separately. Sets, consisting of lamp and accessories, are available on request.

#### CONNECTION CABLE WITH FEMALE CONNECTOR AND OPEN END

Art. No.	Model	Length	Voltage type	Use for
244356	connection cable 2×1.5mm <sup>2</sup> with female connector	2.0m	AC	power input
244357	connection cable 2×AWG 15 with female connector	2.0m	AC	power input

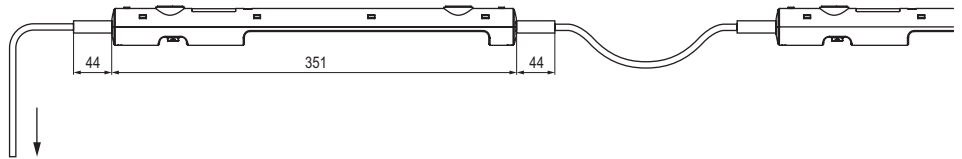
#### EXTENSION CABLE WITH 2 CONNECTORS FOR DAISY CHAIN CONNECTION

Art. No.	Model	Length	Voltage type	Use for
244358	extension cable 2×1.5mm <sup>2</sup> with 2 connectors	1.0m	AC	daisy chain
244359	extension cable 2×AWG 15 with 2 connectors	1.0m	AC	daisy chain

#### FEMALE / MALE CONNECTORS

Art. No.	Model	Color	Voltage type	Use for
264057	female connector	white	AC	power input
264058	male connector	white	AC	power input

#### CONNECTION EXAMPLE



This illustration shows the LED 025 lamp in a daisy chain application. The lamps are conveniently connected via quick connection plugs – up to 10 (5) lamps max. can be daisy-chained this way. The snap lock connectors ensure a stable electrical connection even if subjected to heavy vibration. The connection example shows a 230VAC application, using the following cables: connection cable with female connector, Art. No. 244356 (1); daisy chain extension cable with 2 connectors, Art. No. 244358 (2).

Female/male connectors are also available to assemble cables in non-standard lengths.

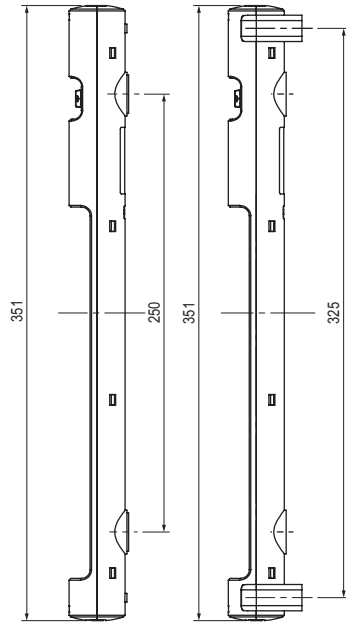
### LED 025-C



with ON/OFF switch



Fast wiring connector, press the connector, then insert cable into the connector is ok, no need screws. Save time and safety.



- Wide voltage range
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- Daisy chain
- On/off switch
- Magnet, screw

The lamp series LED 025-C is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 10 lamps to be connected to each other (12VDC versions up to 5 lamps). Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs the lamp can quickly be connected.

### Technical Data

CE RoHS ISO9001 Patent

LED 025-C	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	Fast Fixing Spring Connector
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

**Mounting options:** The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025-C with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025-C can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

Art. No.	Fixing type	Switch	Operating voltage
025CM	Magnet fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)
025CS	Screw fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)

<sup>1</sup> approx. 5 min. fixed switch-on duration



### LED 025-24



Patent Number: ZL 2013 3 0172682.0

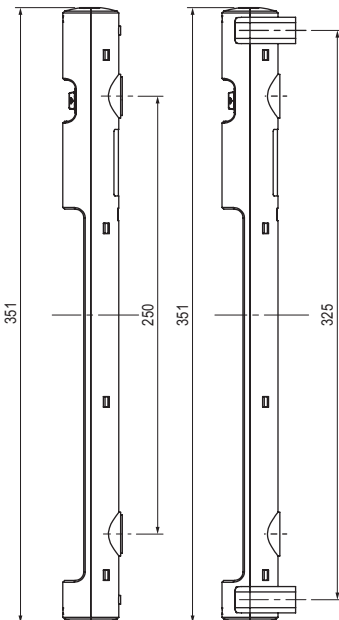
- Wide voltage range: 24V-30VAC/DC
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- Fast Fixing Spring Connector
- On/off switch
- Magnet Fixing or Screw Fixing Type can be choose

The lamp series LED 025-24 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology.

#### Technical Data

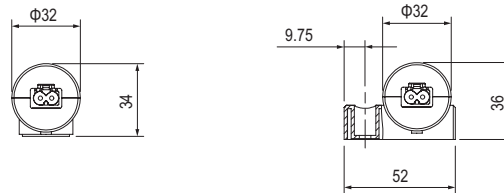
CE RoHS ISO9001 Patent

LED 025-24	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)



**Mounting options:** The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025 with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025 can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.



Art. No.	Fixing type	Switch	Operating voltage
025M24	Magnet fixing	on/off light switch	24-30VAC/DC(min. 24V, max. 30V)
025S24	Screw fixing	on/off light switch	24-30VAC/DC(min. 24V, max. 30V)

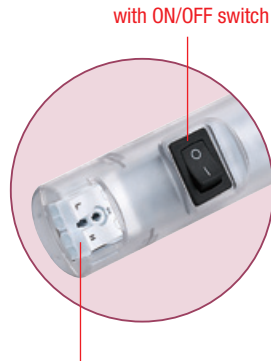
<sup>1</sup> approx. 5 min. fixed switch-on duration

### LED 025-C-24

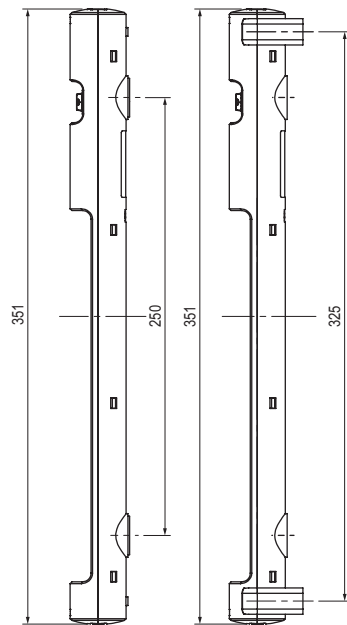


- Wide voltage range: 24V-30VAC/DC
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- Fast Fixing Spring Connector
- On/off switch
- Magnet Fixing or Screw Fixing Type can be choose

The lamp series LED 025-C-24 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology.



Fast wiring connector, press the connector, then insert cable into the connector is ok, no need screws. Save time and safety.



CE RoHS ISO9001 Patent

### Technical Data

LED 025-C-24	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	Fast Fixing Spring Connector
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

**Mounting options:** The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025-C-24 with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025-C-24 can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

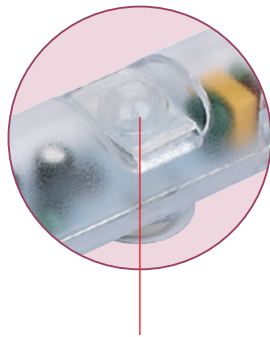
Art. No.	Fixing type	Switch	Operating voltage
025CM24	Magnet fixing	on/off light switch	24-30VAC/DC(min. 24V, max. 30V)
025CS24	Screw fixing	on/off light switch	24-30VAC/DC(min. 24V, max. 30V)

<sup>1</sup> approx. 5 min. fixed switch-on duration

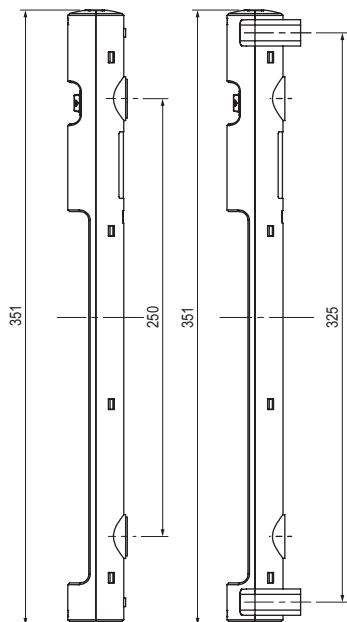
### LED 025-PIR



Patent Number: ZL 2013 3 0172682.0



With Motion Sensor



- Wide voltage range: 48V-265VAC/DC
- Pure PC material, clear cover
- With super magnetic to protect from falling down from top of cabinet or side of cabinet
- Energy saving, only 5W
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- With movement sensor
- With two fixing type: magnet fixing type and screw fixing type
- With daisy chain connector

#### Operation Process:

When connect with city power, about 5 seconds it will be off to finish test product, when it detects the movement from people, it will make light on, when people leave away, after about 5 minutes later, it will make light off.

The lamp series LED 025-PIR is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 5 lamps to be connected to each other. Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs, the lamp can quickly be connected.

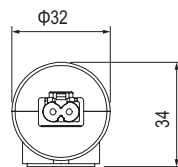
#### Technical Data

CE RoHS ISO9001 Patent

LED 025-PIR	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock AC: max. 2.5A / 240VAC, color: white DC: max. 2.5A / 60VDC, color: blue
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

**Mounting options:** The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025-PIR with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025-PIR can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

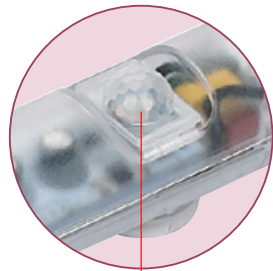


Art. No.	Fixing type	Sensor	Operating voltage
025M-PIR	Magnet fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)
025S-PIR	Screw fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)

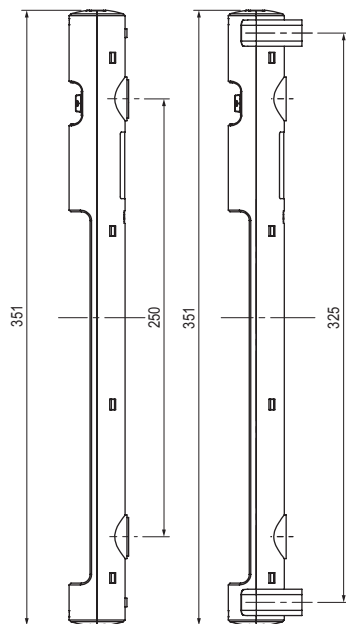
### LED 025-C-PIR



Patent Number: ZL 2013 3 0172682.0



With Motion Sensor



- Wide voltage range: 48V-265VAC/DC
- Pure PC material, clear cover
- With super magnetic to protect from falling down from top of cabinet or side of cabinet
- Energy saving, only 5W
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- With movement sensor
- With two fixing type: magnet fixing type and screw fixing type
- With fast fixing connector: press connector, insert cable in, ready.

#### Operation Process:

When connect with city power, about 5 seconds it will be off to finish test product, when it detects the movement from people, it will make light on, when people leave away, after about 5 minutes later, it will make light off.

The lamp series LED 025-C-PIR is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Two different fixing options provide more flexibility for installation.

#### Technical Data

CE RoHS ISO9001 Patent

LED 025-C-PIR	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	Fast Fixing Spring Connector
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

**Mounting options:** The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025-C-PIR with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025-C-PIR can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

Art. No.	Fixing type	Sensor	Operating voltage
025CM-PIR	Magnet fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)
025CS-PIR	Screw fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)

### LED 035



with ON/OFF switch

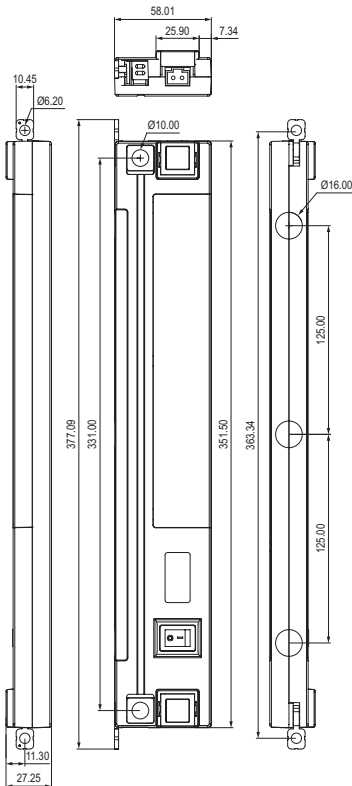
- Wide voltage range: 48V-265VAC/DC
- With ON/OFF switch
- Pure PC material, clear cover
- With super magnetic to protect from falling down from top of cabinet or side of cabinet
- Energy saving, only 5W
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- With two fixing type: magnet fixing type and screw fixing type
- With daisy chain connector

The lamp series LED 035 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 5 lamps to be connected to each other. Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs the lamp can quickly be connected.

### Technical Data

CE RoHS ISO9001 Patent

LED 035	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock AC: max. 2.5A / 240VAC, color: white DC: max. 2.5A / 60VDC, color: blue
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)



### Mounting options, with two types:

1. Magnet Fixing: The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure.
2. Screw Fixing: A classic is the LED 035 with screw fixing. The clip holders exclusively designed for clip fixing of the LED 035 positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

Art. No.	Fixing type	Switch	Operating voltage
035M	Magnet fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)
035S	Screw fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)
035SM	Magnet fixing+Screw fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)

<sup>1</sup> approx. 5 min. fixed switch-on duration

### LED 035-PIR



With Motion Sensor

- Wide voltage range: 48V-265VAC/DC
- With movement sensor
- Pure PC material, clear cover
- With super magnetic to protect from falling down from top of cabinet or side of cabinet
- Energy saving, only 5W
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- With two fixing type: magnet fixing type and screw fixing type
- With daisy chain connector

The lamp series LED 035-PIR is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 5 lamps to be connected to each other. Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs, the lamp can quickly be connected.

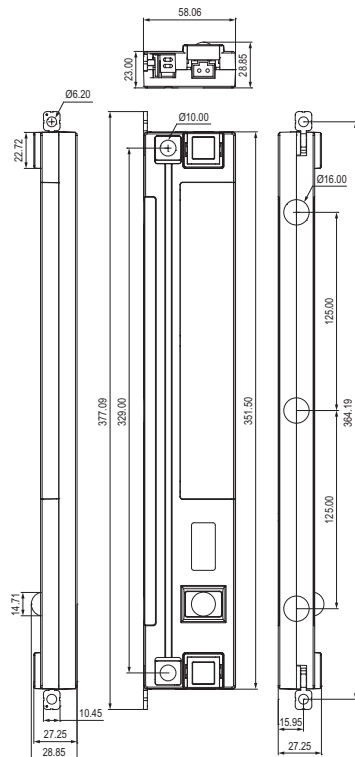
#### Operation Process:

When connect with city power, about 5 seconds it will be off to finish test product, when it detects the movement from people, it will make light on, when people leave away, after about 5 minutes later, it will make light off.

#### Technical Data

CE RoHS ISO9001 Patent

LED 035-PIR	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock AC: max. 2.5A / 240VAC, color: white DC: max. 2.5A / 60VDC, color: blue
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)



#### Mounting options, with two types:

1. Magnet Fixing: The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure.
2. Screw Fixing: A classic is the LED 035-PIR with screw fixing. The clip holders exclusively designed for clip fixing of the LED 035-PIR positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

Art. No.	Fixing type	Sensor	Operating voltage
035M-PIR	Magnet fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)
035S-PIR	Screw fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)
035SM-PIR	Magnet fixing+Screw fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)



### LED 035-24



with ON/OFF switch

- Wide voltage range: 24V-30VAC/DC
- With ON/OFF switch
- Pure PC material, clear cover
- With super magnetic to protect from falling down from top of cabinet or side of cabinet
- Energy saving, only 5W
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- With two fixing type: magnet fixing type and screw fixing type
- With daisy chain connector

The lamp series LED 035-24 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 5 lamps to be connected to each other. Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs the lamp can quickly be connected.

### Technical Data

CE RoHS ISO9001 Patent

LED 035-24	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock AC: max. 2.5A / 240VAC, color: white DC: max. 2.5A / 60VDC, color: blue
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

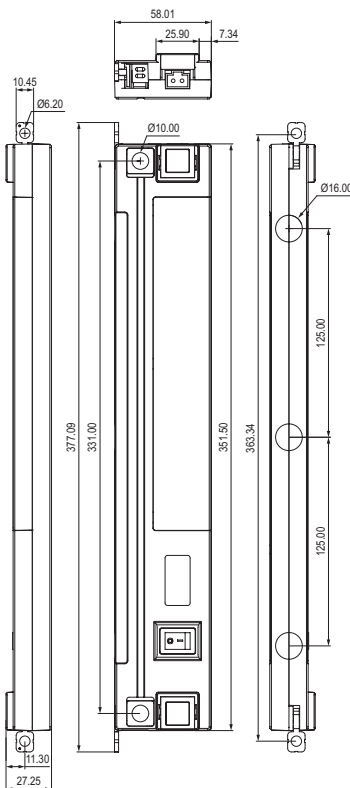
### Mounting options, with two types:

1. Magnet Fixing: The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure.
2. Screw Fixing: A classic is the LED 035-24 with screw fixing. The clip holders exclusively designed for clip fixing of the LED 035-24 positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

Art. No.	Fixing type	Switch	Operating voltage
035M-24	Magnet fixing	on/off light switch	24-30VAC/DC(min. 24V, max. 30V)
035S-24	Screw fixing	on/off light switch	24-30VAC/DC(min. 24V, max. 30V)
035SM-24	Magnet fixing+Screw fixing	on/off light switch	24-30VAC/DC(min. 24V, max. 30V)

<sup>1</sup> approx. 5 min. fixed switch-on duration



### LED 035-C



with ON/OFF switch

- Wide voltage range: 48V-265VAC/DC
- With ON/OFF switch
- With spring connector: Fast, just press connector, insert cable in, ready.
- Pure PC material, clear cover
- With super magnetic to protect from falling down from top of cabinet or side of cabinet
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- With two fixing type: magnet fixing type and screw fixing type
- Energy saving, only 5W

The lamp series LED 035-C is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 5 lamps to be connected to each other. Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs the lamp can quickly be connected.

### Technical Data

CE RoHS ISO9001 Patent

LED 035-C	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock AC: max. 2.5A / 240VAC, color: white DC: max. 2.5A / 60VDC, color: blue
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

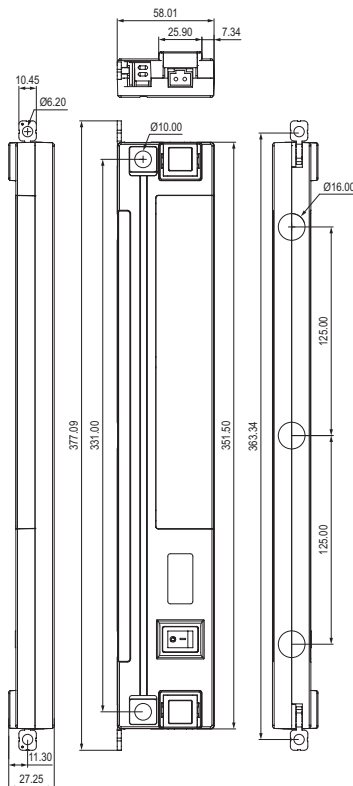
### Mounting options, with two types:

1. Magnet Fixing: The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure.
2. Screw Fixing: A classic is the LED 035-C with screw fixing. The clip holders exclusively designed for clip fixing of the LED 035-C positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

Art. No.	Fixing type	Switch	Operating voltage
035CM	Magnet fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)
035CS	Screw fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)
035CSM	Magnet fixing+Screw fixing	on/off light switch	48-265VAC/DC(min. 48V, max. 265V)

<sup>1</sup> approx. 5 min. fixed switch-on duration



### LED 035-C-PIR



With Motion Sensor

- Wide voltage range: 48V-265VAC/DC
- With movement sensor
- With spring connector: Fast, just press connector, insert cable in, ready.
- Pure PC material, clear cover
- With super magnetic to protect from falling down from top of cabinet or side of cabinet
- Integrated power unit
- Long-lived and maintenance-free by LED technology
- With two fixing type: magnet fixing type and screw fixing type
- Energy saving, only 5W

#### Operation Process:

When connect with city power, about 5 seconds it will be off to finish test product, when it detects the movement from people, it will make light on, when people leave away, after about 5 minutes later, it will make light off.

The lamp series LED 035-C-PIR is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Two different fixing options provide more flexibility for installation.

#### Technical Data

CE RoHS ISO9001 Patent

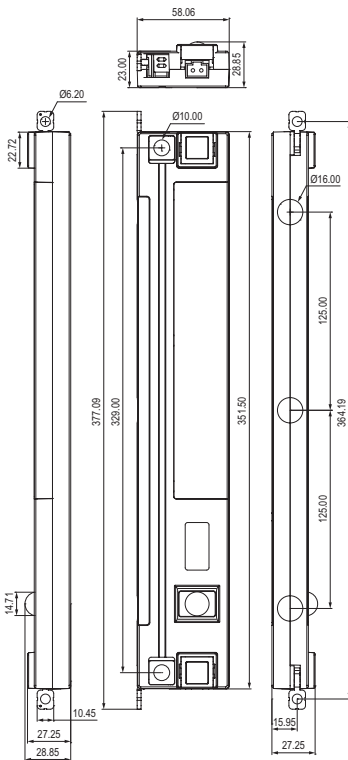
LED 035-C-PIR	
Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	Fast Fixing Spring Connector
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

#### Mounting options, with two types:

1. Magnet Fixing: The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure.
2. Screw Fixing: A classic is the LED 035-C-PIR with screw fixing. The clip holders exclusively designed for clip fixing of the LED 035-C-PIR positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

**Note:** The lamp must not be used for household lighting.

Art. No.	Fixing type	Sensor	Operating voltage
035CM-PIR	Magnet fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)
035CS-PIR	Screw fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)
035CSM-PIR	Magnet fixing+Screw fixing	PIR Movement Sensor	48-265VAC/DC(min. 48V, max. 265V)





# Accessories

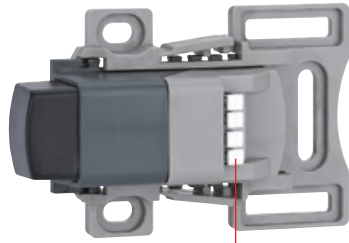
Filter, Lamp, Transparent Protection Window Hood



CE RoHS ISO9001 Patent



### DS 013



Fast Wiring Connector, just press the connector, then insert the cable into the hole, no need screws.

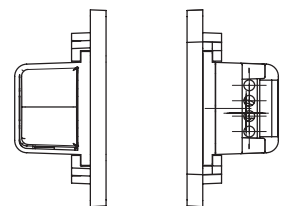
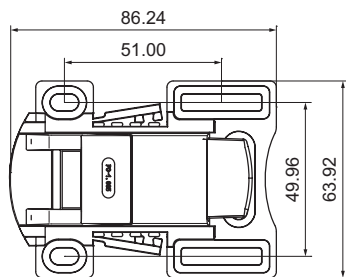
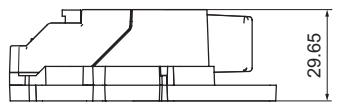
- Adjustable positioning without tools
- High switching capacity
- Double strain relief
- Different cladding diameters
- Suit for Lamp LED 025, LED 025-C and LED 035, LED 035-C Series.

The door switch monitors the position of cabinet doors and is available in three versions. For example, it 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 change-over contact (CO) can be used as a normally closed and/or normally open contact. The wide mechanical adjustment range of the door switch DS 013 offers versatile application areas: the housing is adjustable within a 35mm range, while the screw flange with a slotted hole offers an additional 21 mm. The switching travel of the switch itself is another 8mm.

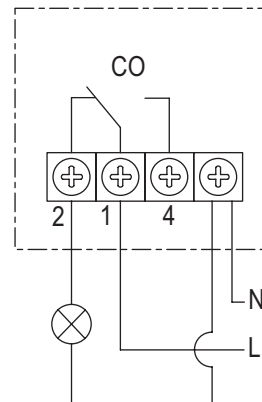
#### Technical Data

CE RoHS ISO9001 Patent

DS 013	
Operating Voltage:	all AC/DC voltage
Max. switching capacity	250VAC, 8 (1.5) A
Service life	>10,000 cycles
Connection	4-pole clamp with strain relief, clamping torque 0.5Nm max.
Mounting	screw fixing (M5)
Casing	plastic according to UL94 V-0, grey/black
Dimensions	87×64×30mm
Weight	approx. 50g
Operating / Storage temperature	variable
Operating / Storage humidity	-20 to +85°C (-4 to +185°F)
Protection type	max. 90% RH (non-condensing)



#### Connection Diagrams



Art. No.	Model	Suitable wire
01350.0-00	change-over (CO)	Cable round, stranded wire (with wire end ferrule) 0.75mm <sup>2</sup> to 1mm <sup>2</sup>



### LC 013 / LCF 013



- Mechanical switch contact
- Versatile fields of application
- Small size
- Easy to connect

The airflow monitor (NC/NO) is designed to indicate the loss of air movement of a fan or filter fan. The contact detects the loss of air movement caused by fan failure or blocked filter media regardless of direction of air. Its simple mechanical operation makes it a viable alternative to electronic monitoring systems.

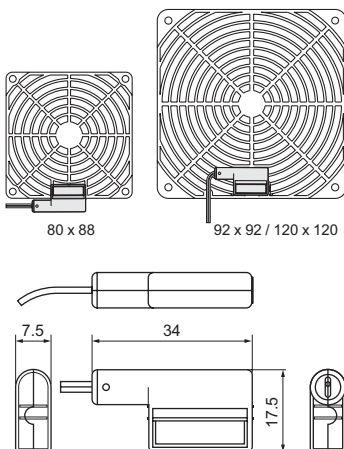
#### Application:

The LC 013 is used as a signal contact to monitor fans or filter fans in stationary, self-contained Protection Class I enclosures. It can be connected to monitoring systems with remote control or can directly switch alarm devices, such as LED's or signal lamps. Loads with capacities exceeding the indicated switching capacity must be switched via a relay, e.g. our electronic relay SM 010. The airflow monitor with NC contact closes upon loss of air movement, i.e. it indicates fan failure (e.g. red signal lamp). The NO contact closes when fan is in operation and serves as optical function display (e.g. green signal lamp).

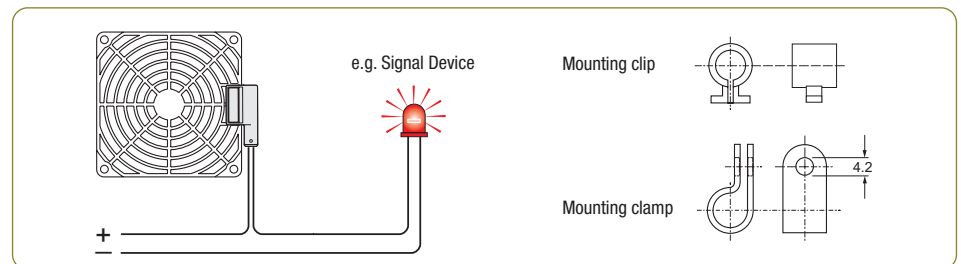
#### Technical Data

CE RoHS ISO9001 Patent

LC 013 / LCF 013	
Contact type	reed / magnet contact
Normally Closed (NC)	switch contact open when air is flowing
Normally Open (NO)	switch contact closed when air is flowing
Max. switching voltage	NC: 240VDC (UL), 240V AC/DC (VDE) / NO: 60VDC
Max. switching current	NC: DC 500mA / NO: DC 170mA
Max. switching capacity	10W (resistive load)
Switching threshold of airflow velocity	>2.5m/s (hysteresis:>1m/s)
Max. airflow velocity	50m/s
Contact resistance	<370mΩ (with wire)
Max. air humidity	70% RH (not precipitating)
Service life	>100,000 cycles
Connection	2×single strand AWG26, length 500mm, tip of stranded wire 5mm stripped and tinned (NC:black, NO:blue)
Mounting	alternatively integrated in protective grille. mounting clamp or mounting clip
Casing	plastic according to UL94-HB, black
Fitting position	bidirectional tab perpendicular to airflow
Operating / Storage temperature	-20 to +50°C (-4 to +122°F) / -20 to +80°C (-4 to +176°F)
Protection type	IP20



#### Examples of connection



Model	Art. No. (NC)	Art. No. (NO)	Dimensions	Weight (approx.)
LC 013	01300.0-00	01300.1-00	34×17.5×7.5mm	5g
LCF 013	01301.0-00	01301.1-00	80×88×10.5mm	20g
LCF 013	01302.0-00	01302.1-00	92×92×10mm	20g
LCF 013	01303.0-00	01303.1-00	120×120×10mm	30g

### DA 084



- High degree of protection
- Easy to install

It has become more and more important to provide a protected enclosure environment for valuable and crucial electrical and electronic components. In a tightly closed enclosure, pressure differentials can occur during extreme temperature variations. The specially designed pressure compensation device DA 084 permits a controlled change in pressure and avoids the entering of dust and water. The pressure compensation device is suitable for the use in enclosures and housings in accordance with DIN EN 62208.

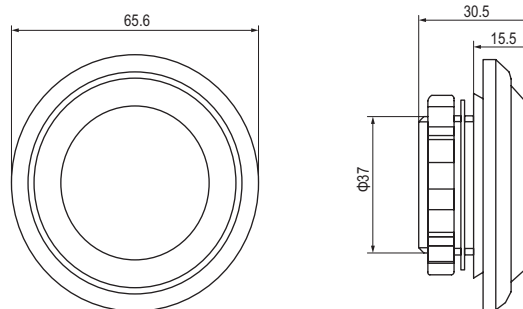
#### Technical Data

CE RoHS ISO9001 Patent

DA 084	
Mounting	PG 29 thread with union nut
Torque	5Nm (max. 10Nm)
Material	plastic according to UL94 V-0, light grey weather proof and UV light resistant according to UL746C (f1)
Sealing	sealing gasket NBR
Air interface	approx. 1.5cm <sup>2</sup>
Dimensions	Ø65.5×30.5mm
Fitting position	vertical <sup>1</sup>
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)

<sup>1</sup> Protection type is restricted to IP54 if fitting position of DA 084 is not vertical.

**Installation:** Make cut-out Ø37+1mm in enclosure wall and mount pressure compensation device with nut. Please make sure that the sealing gasket is put in place on the outer side panel of the enclosure. For optimal pressure compensation we recommend to use two devices on opposite sides towards the top of the enclosure.



Art. No.	Protection type	1 packing unit	Weight (approx.)
08400.0-03	IP55	1 pc	31g

### DA 284 / 284M12

- High degree of protection
- Waterproof membrane
- Easy to install

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. The easy-to-install pressure compensation device DA 284 provides compensation of pressure at a protection degree of IP66 (M12: IP68). 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.

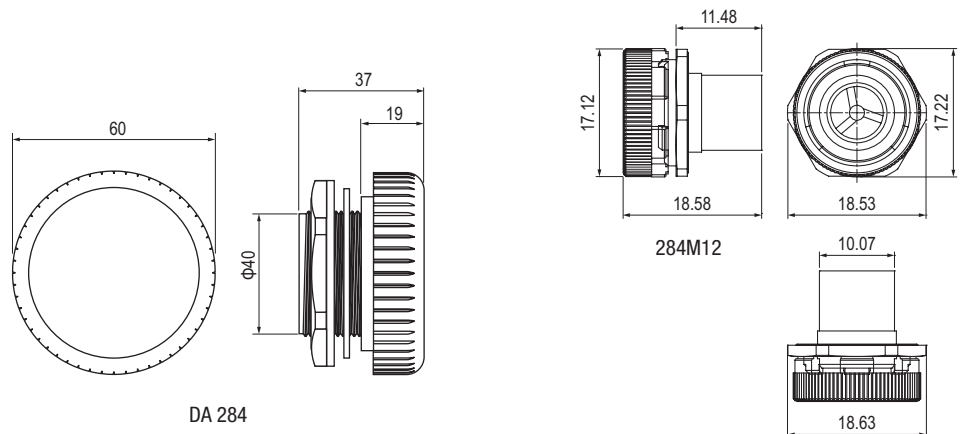


### Technical Data

CE RoHS ISO9001 Patent

DA 284	
Mounting	thread M40×1.5 or M12×1.5 with nut
Torque	M40: 5Nm (max. 10Nm), M12: 0.5Nm (max. 1Nm)
Depth in enclosure	M40: approx. 16mm, M12: approx. 8mm
Sealing	sealing gasket NBR
Material	plastic, light grey
Filter	waterproof membrane
Dimensions	M40: Ø60×37mm, M12: Ø17×17.5mm
Fitting position	variable

**Installation:** Make cut-out Ø40.5+0.5mm in enclosure wall for size M40 or Ø12+0.2mm for size M12, and mount pressure compensation device with nut. Please make sure that the sealing gasket is put in place on the outer side panel of the enclosure. For optimal pressure compensation we recommend to use two devices on opposite sides towards the top of the enclosure.



Art. No.	Protection type	1 packing unit	Weight (approx.)
28400.0-01	IP66	1 piece	45g
284M12	IP66	1 piece	20g

861001/861002/861003

NTL-SFF200-A

NTL-SFF250-A

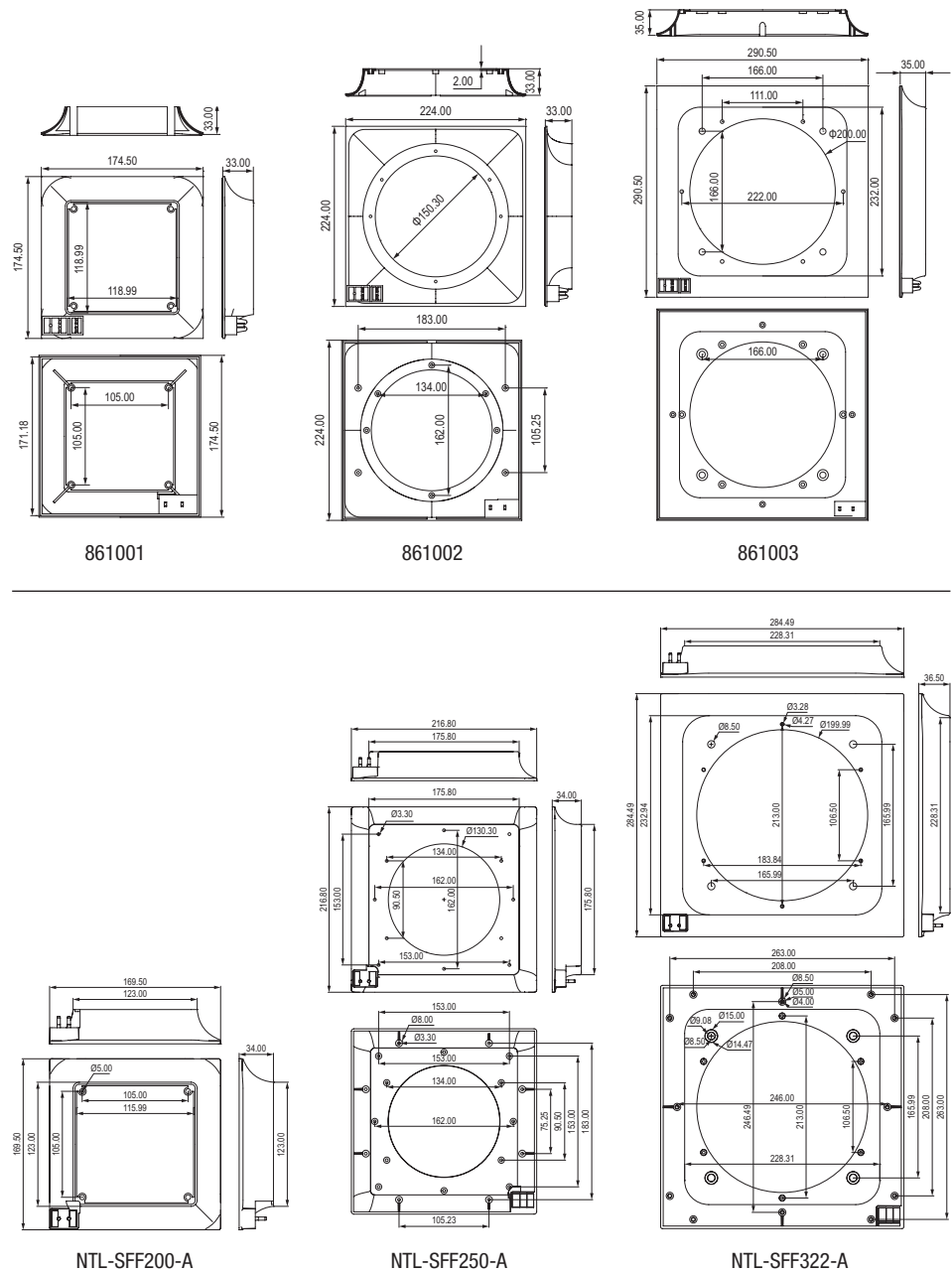
NTL-SFF322-A

- With location fixing for terminal connector
- Color: RAL 7035
- Offer protection for airflow to keep airflow leakage from backside
- Easy to change and clean

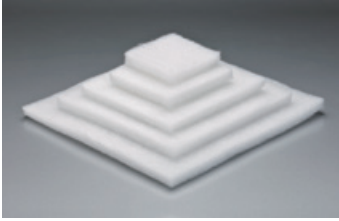
### Technical Data

CE RoHS ISO9001 Patent

Model	Match Fan Filter Size
861001	match with NTL-FF204, NTL-LDF204, NTL-FCF204
861002	match with NTL-FF255, NTL-LDF255, NTL-FCF255
861003	match with NTL-FF323, NTL-LDF323, NTL-FCF323
NTL-SFF200-A	match with NTL-SFF200
NTL-SFF250-A	match with NTL-SFF250
NTL-SFF322-A	match with NTL-SFF322



### NTL-F120M/F152M/F204M F255M/F323M



- Normal Type is: G4 , For special requirement, can According to customer
- A quality
- Purify for air
- Easy to change and clean

The filter mats ensures reliable air filtration of all types of dust and effectively protects the interior of the control cabinet from contamination.

#### Technical Data

CE RoHS ISO9001 Patent

Model	Mat Size	Match Fan Filter Size
NTL-F120M	86×86mm	120×120mm filter
NTL-F152M	118×118mm	152×152mm filter
NTL-F204M	171×171mm	204×204mm filter
NTL-F255M	223×223mm	255×255mm filter
NTL-F323M	286×286mm	323×323mm filter

### SD 035



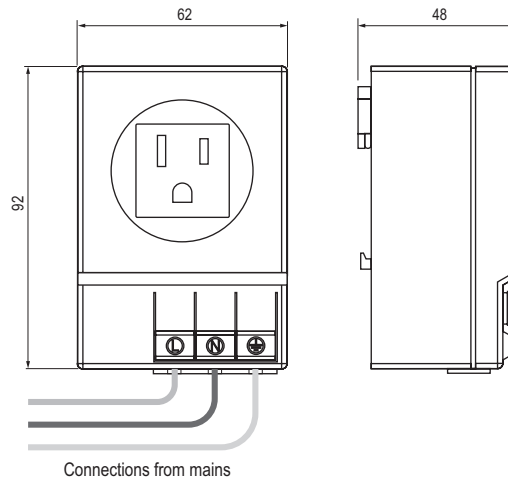
- Quickly connected
- Available with or without fuse
- Clip fixing

The DIN rail mounted electrical socket can be quickly fitted and connected in enclosures allowing the use of auxiliary products such as hand lamps, measuring devices, soldering irons etc. The unit is available with and without fuse and in many world socket standards.

#### Technical Data

CE RoHS ISO9001 Patent

SD 035	
Connection	3×pressure clamps for stranded and rigid wire 0.5-2.5mm <sup>2</sup>
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	92×62×48mm
Weight	approx. 0.2kg
Fitting position	variable
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)



Art. No.	Nominal current	Operating Voltage
03504.0-01	15A	125V



### NA Series Fan

- Impeller: PBT Thermoplastic Black
- Frame: Aluminum Alloy
- Motor: Shaded Pole Induction Motor

CE RoHS ISO9001 Patent

#### Technical Data

Model Number	Voltage (V)	Freq. (Hz)	Current (A)	Power (W)	Speed (RPM)	Noise (dBA)	Air Flow		Size
							M <sup>3</sup> /hr	CFM	
NA8025HA <sub>1</sub> B	100~125	50/60	0.13	13	2300/2700	27/30	32/39	19/23	80×80×25mm
NA8025HA <sub>2</sub> B	200~240	50/60	0.07	13	2300/2700	27/30	32/39	19/23	
NA8025MA <sub>1</sub> B	100~125	50/60	0.13	13	1700/2200	22/26	24/32	14/19	
NA8025MA <sub>2</sub> B	200~240	50/60	0.07	13	1700/2200	22/26	24/32	14/19	
NA8038HA <sub>1</sub> B	100~125	50/60	0.14	14	2400/2800	27/30	39/48	28/32	80×80×38mm
NA8038HA <sub>2</sub> S	200~240	50/60	0.07	14	2400/2800	27/30	39/48	28/32	
NA9225HA <sub>1</sub> S(B)	100~125	50/60	0.14	13	2300/2800	34/40	47/58	28/34	92×92×25mm
NA9225HA <sub>2</sub> S(B)	200~240	50/60	0.07	13	2300/2800	34/40	47/58	28/34	
NA9225MA <sub>1</sub> S(B)	100~125	50/60	0.14	13	1800/2300	28/35	37/45	22/26	
NA9225MA <sub>2</sub> S(B)	200~240	50/60	0.07	13	1800/2300	28/35	37/45	22/26	
NA9238HA <sub>1</sub> S(B)	100~125	50/60	0.23/0.18	17/13	2350/2750	26/31	66/78	38/46	92×92×38mm
NA9238HA <sub>2</sub> S(B)	200~240	50/60	0.10/0.08	17/13	2600/3000	31/35	72/85	38/46	
NA9238MA <sub>1</sub> S(B)	100~125	50/60	0.12/0.09	11/8	2200/2500	25/27	63/70	37/41	
NA9238MA <sub>2</sub> S(B)	200~240	50/60	0.07/0.06	9/7	2250/2600	26/28	65/75	37/41	
NA11025HA <sub>1</sub> S(B)	100~125	50/60	0.20	18	2200/2500	34/40	84/100	49/59	110×110×25mm
NA11025HA <sub>2</sub> S(B)	200~240	50/60	0.10	18	2200/2500	35/41	84/100	49/59	
NA11025MA <sub>1</sub> S(B)	100~125	50/60	0.16	16	1800/2300	30/35	70/84	41/49	
NA11025MA <sub>2</sub> S(B)	200~240	50/60	0.80	16	1800/2300	30/35	70/84	41/49	
NA12025HA <sub>1</sub> S(B)	100~125	50/60	0.25	21	2300/2700	39/42	96/112	57/66	120×120×25mm
NA12025HA <sub>2</sub> S(B)	200~240	50/60	0.13	21	2300/2700	39/42	96/112	57/66	
NA12025MA <sub>1</sub> S(B)	100~125	50/60	0.16	16	1800/2300	31/36	76/95	45/56	
NA12025MA <sub>2</sub> S(B)	200~240	50/60	0.08	16	1800/2300	31/36	76/95	45/56	
NA12038HA <sub>1</sub> B(S)	100~125	50/60	0.22/0.18	21/18	2600/3000	43/48	138/162	82/95	120×120×38mm
NA12038HA <sub>2</sub> B(S)	200~240	50/60	0.14/0.12	21/18	2600/3000	43/48	138/162	82/95	
NA12038HA <sub>3</sub> B(S)	380	50/60	0.09/0.07	21/18	2600/3000	39/44	138/162	82/95	172×150×50mm
NA17050HA <sub>1</sub> B(S)	100~125	50/60	0.43/0.40	26/28	2650/2950	54/50	299/336	176/198	
NA17050HA <sub>2</sub> B(S)	200~240	50/60	0.23/0.20	26/28	2650/2950	54/50	299/336	176/198	
NA17050HA <sub>3</sub> B(S)	380	50/60	0.13/0.11	26/28	2650/2950	54/50	299/336	176/198	
NA1725HA <sub>1</sub> B(S)	100~125	50/60	0.45/0.40	26/28	2650/2950	54/59	299/336	176/198	172×172×51mm
NA1725HA <sub>2</sub> B(S)	200~240	50/60	0.23/0.20	26/28	2650/2950	54/59	299/336	176/198	
NA1725HA <sub>3</sub> B(S)	380	50/60	0.13/0.11	26/28	2650/2950	54/59	299/336	176/198	
NA18065HA <sub>1</sub> B-C	100~125	50/60	0.42	45	2600/3000	63/68	586/671	345/395	
NA18065HA <sub>2</sub> B-C	200~240	50/60	0.22	45	2600/3000	63/68	586/671	345/395	
NA20060HA <sub>1</sub> B-W-C	100~125	50/60	0.4	60	2500/2800	60/65	780/890	460/530	200×200×60mm
NA20060HA <sub>2</sub> B-W-C	200~240	50/60	0.3	60	2500/2800	60/65	780/890	460/530	
NA20060HA <sub>3</sub> B-W-C	380	50/60	0.2	60	2600/2900	60/65	780/890	460/530	220×220×60mm
NA22060HA <sub>1</sub> B(S)	100~125	50/60	0.4	60	2650/2950	54/59	900/1000	600/700	
NA22060HA <sub>2</sub> B(S)	200~240	50/60	0.3	60	2650/2950	54/59	900/1000	600/700	
NA22060HA <sub>3</sub> B(S)	380	50/60	0.2	60	2650/2950	54/59	900/1000	600/700	
NA22580HA <sub>2</sub> B-C	220	50/60	0.40	80	2300/2600	65/68	1000/1150	588/676	225×225×80mm
NA22580HA <sub>3</sub> B	380	50/60	0.20	80	2300/2600	65/68	1000/1150	588/676	
NA22580HA <sub>6</sub> B-C	380	50/60	0.21	80	2300/2600	65/68	1000/1150	588/676	
NA28080HA <sub>1</sub> -C	100~125	50/60	1.20	120	2400/2500	65/70	2280/2570	1341/1512	
NA28080HA <sub>2</sub> -C	200~240	50/60	0.55	120	2400/2500	65/70	2280/2570	1341/1512	
NA28080HA <sub>3</sub>	380~420	50/60	0.32	120	2400/2500	65/70	2280/2570	1341/1512	
NA28080HA <sub>6</sub> -C	380~420	50/60	0.36	120	2400/2500	65/70	2280/2570	1341/1512	

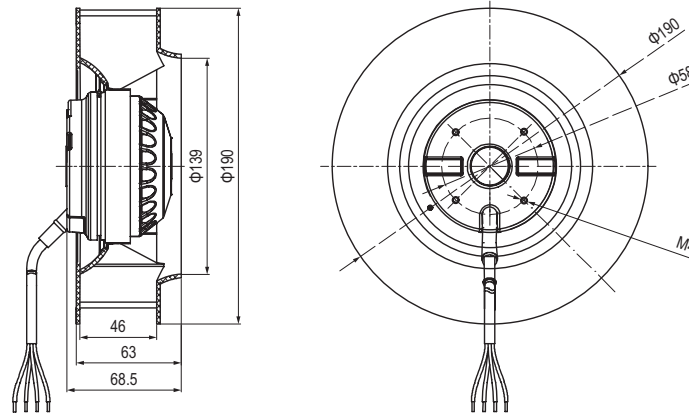
12VDC, 24VDC, 48VDC can be offered too for some models, welcome detail inquiry

### NA190



#### General Specification

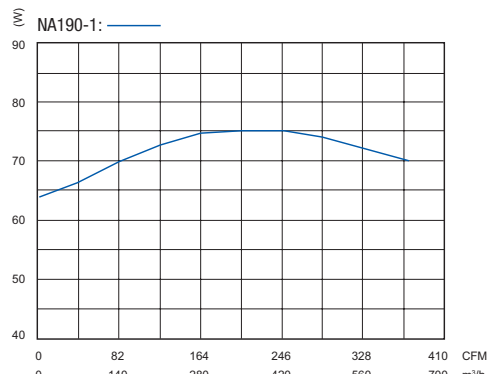
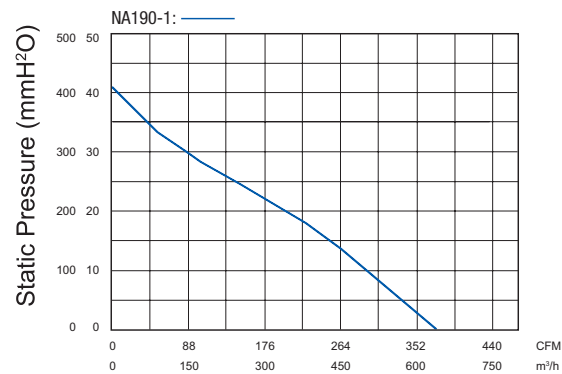
Weight: 1400g  
 Impeller: PA66+25GF  
 Insulation Class: F  
 Motor Type: AC Induction external rotor motor  
 Operation Temperature:  $-30^{\circ}\text{C} \sim +60^{\circ}\text{C}$   
 Motor Protection type: IP44  
 Protection: Thermal overload protector wired internally



#### Specific Parameters

Model Number	Bearing Type	Voltage (V)	Freq. (Hz)	Current (A)	Power (W)	Speed (RPM)	Noise (dBA)	Air Flow		Pressure (Pa)	Phase	Capacitor
								M <sup>3</sup> /hr	CFM			
NA190-1	Ball	220	50	0.28	55	2600	65	570	340	300	1	2 $\mu\text{f}$

Note: 110VAC or 380VAC also can be offered.

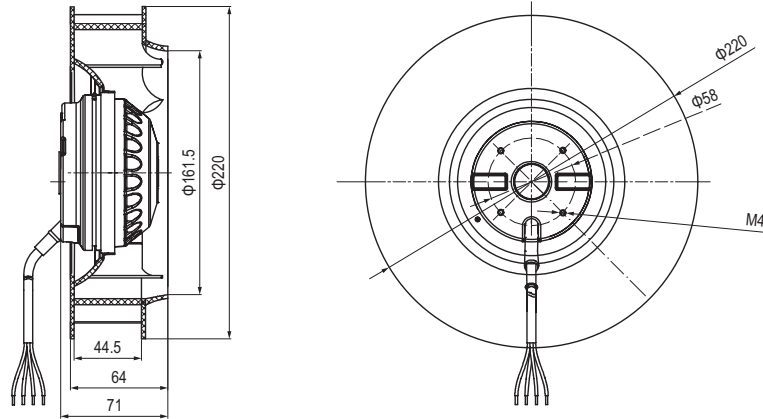


### NA220



### General Specification

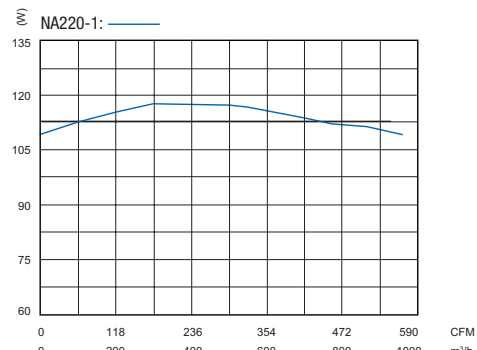
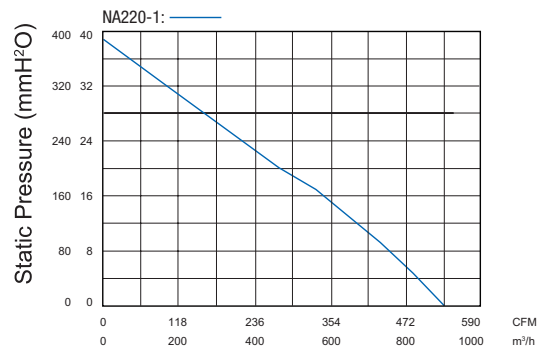
Weight: 1800g  
 Impeller: PA66+25GF  
 Insulation Class: F  
 Motor Type: AC Induction external rotor motor  
 Operation Temperature:  $-30^{\circ}\text{C}\sim+60^{\circ}\text{C}$   
 Motor Protection type: IP44  
 Protection: Thermal overload protector wired internally



### Specific Parameters

Model Number	Bearing Type	Voltage (V)	Freq. (Hz)	Current (A)	Power (W)	Speed (RPM)	Noise (dBA)	Air Flow		Pressure (Pa)	Phase	Capacitor
								M <sup>3</sup> /hr	CFM			
NA220-1	Ball	220	50	0.44	98	2480	74	860	511	360	1	3.5 $\mu\text{f}$

Note: 110VAC or 380VAC also can be offered.

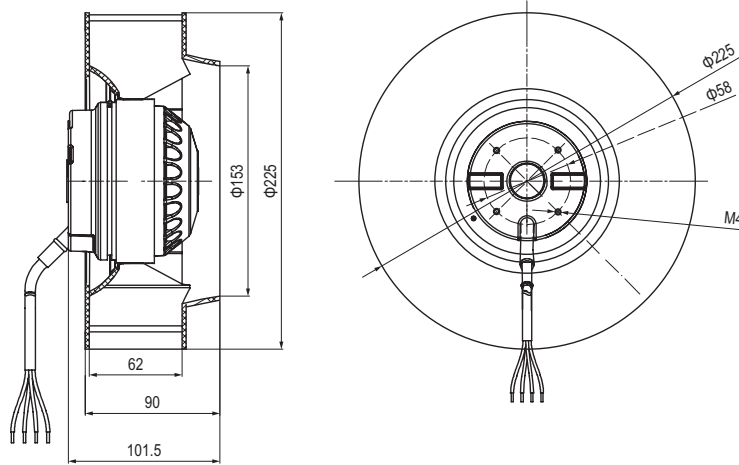


### NA225



### General Specification

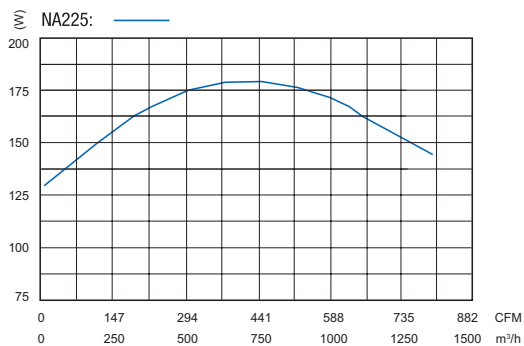
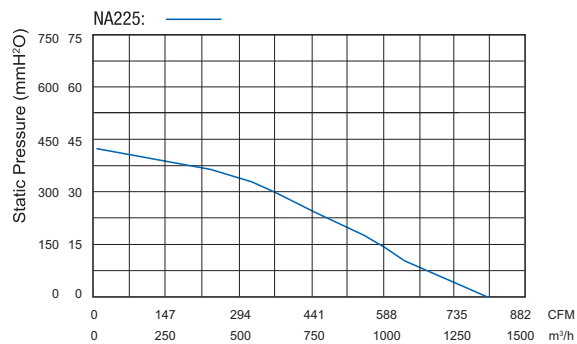
Weight: 2380g  
 Impeller: PA66+25GF  
 Insulation Class: F  
 Motor Type: AC Induction external rotor motor  
 Operation Temperature: -30°C~+60°C  
 Motor Protection type: IP44  
 Protection: Thermal overload protector wired internally



### Specific Parameters

Model Number	Bearing Type	Voltage (V)	Freq. (Hz)	Current (A)	Power (W)	Speed (RPM)	Noise (dBA)	Air Flow		Pressure (Pa)	Phase	Capacitor
								M <sup>3</sup> /hr	CFM			
NA225-1	Ball	230	50	0.72	145	2600	74	1360	810	430	1	5µf-450VAC

Note: 110VAC or 380VAC also can be offered.

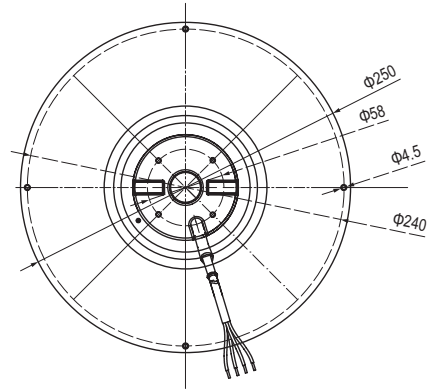
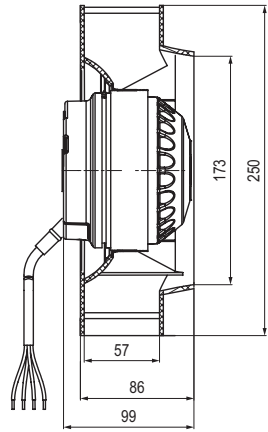


### NA250



#### General Specification

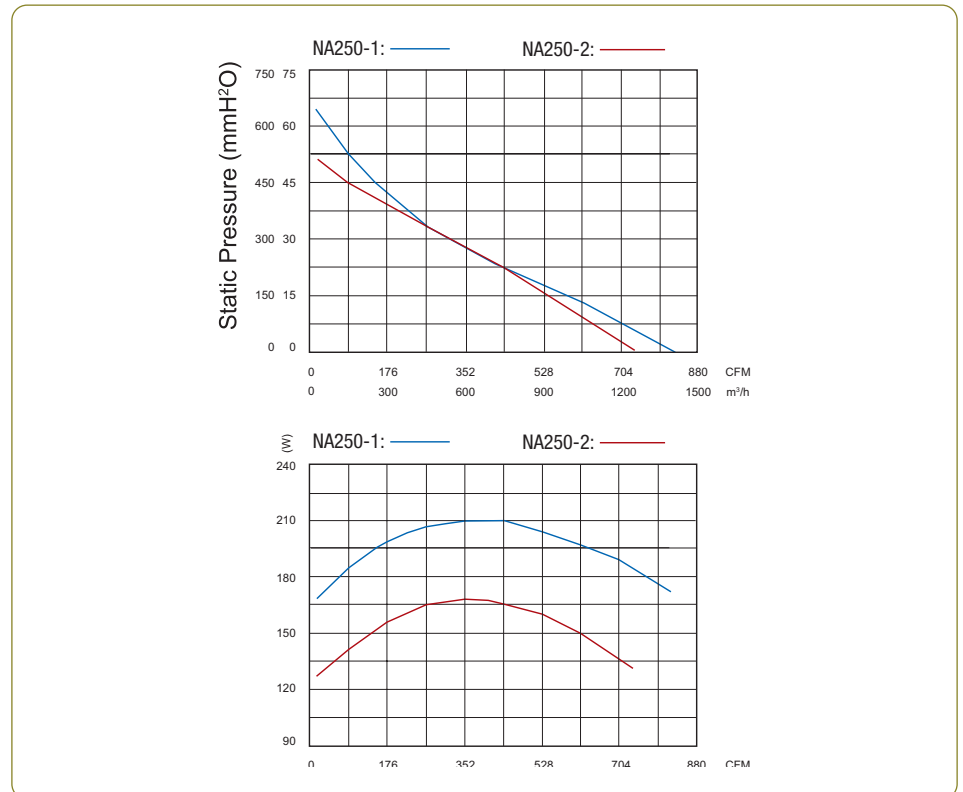
Weight: 2900g  
 Impeller: PA66+25GF  
 Insulation Class: F  
 Motor Type: AC Induction external rotor motor  
 Operation Temperature:  $-30^{\circ}\text{C}\sim+60^{\circ}\text{C}$   
 Motor Protection type: IP44  
 Protection: Thermal overload protector wired internally



#### Specific Parameters

Model Number	Bearing Type	Voltage (V)	Freq. (Hz)	Current (A)	Power (W)	Speed (RPM)	Noise (dBA)	Air Flow		Pressure (Pa)	Phase	Capacitor
								M <sup>3</sup> /hr	CFM			
NA250-1	Ball	220	50	0.62	135	2640	73	1250	736	510	1	5 $\mu\text{f}$
NA250-2	Ball	110	60	0.80	175	2850	76	1400	826	650	1	5 $\mu\text{f}$

Note: 110VAC or 380VAC also can be offered.



### NTL-AG



2 Way



3 Way



4 Way



6 Way



8 Way



86 Type

### PRODUCT FEATURES

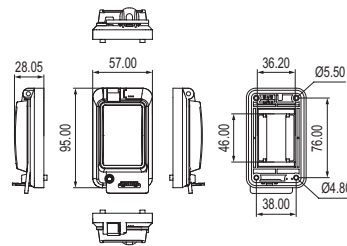
- The high quality polycarbonate (PC) material is used for the high protection grade switch box and control cabinet sealing surface of all kinds of industrial control. Observation and operation can be carried out when the box body is locked.
- The products are waterproof, dustproof, anti-impact, corrosion resistant, long life, good insulation, beautiful appearance and so on.

### Technical Data

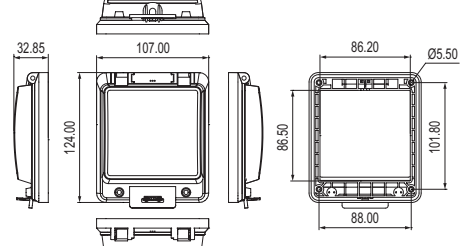
CE RoHS ISO9001 Patent

Model	Way	Size
NTL-AG1002	2 Way	57×100×28mm
NTL-AG1003	3 Way	75×100×28mm
NTL-AG1004	4 Way	93×100×28mm
NTL-AG1006	6 Way	124×100×28mm
NTL-AG1008	8 Way	160×100×28mm
NTL-AG1010	10 Way	196×95×28mm
NTL-AG1012	12 Way	232×95×28mm
NTL-AG1013	13 Way	250×95×28mm
NTL-AG1016	16 Way	304×95×28mm
NTL-AG1018	18 Way	340×95×28mm
NTL-AG1086	86 Type	107×130×28mm

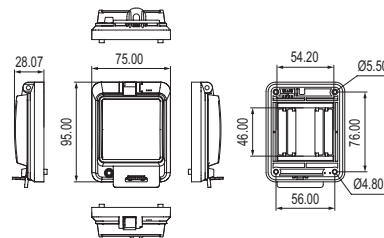
2 Way



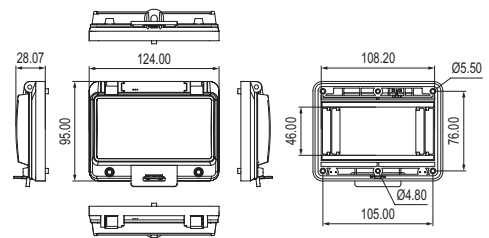
86 Type



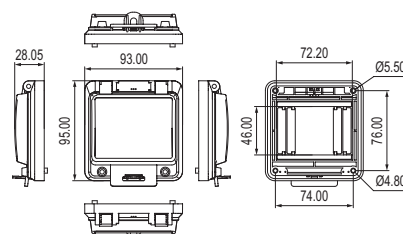
3 Way



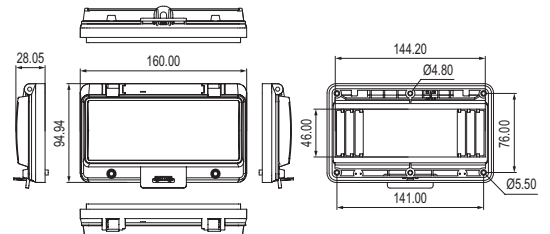
6 Way



4 Way



8 Way





### NTL-AG



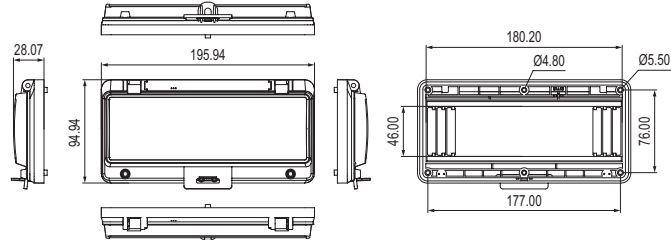
### PRODUCT FEATURES

- The high quality polycarbonate (PC) material is used for the high protection grade switch box and control cabinet sealing surface of all kinds of industrial control. Observation and operation can be carried out when the box body is locked.
- The products are waterproof, dustproof, anti-impact, corrosion resistant, long life, good insulation, beautiful appearance and so on.



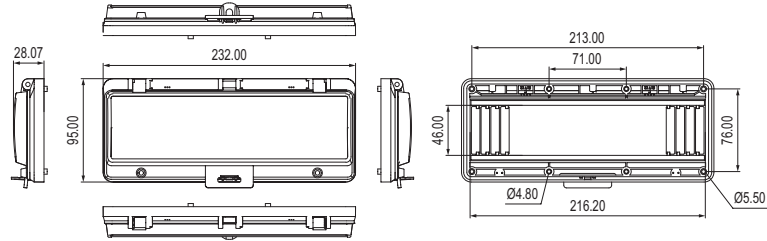
10 Way

10 Way



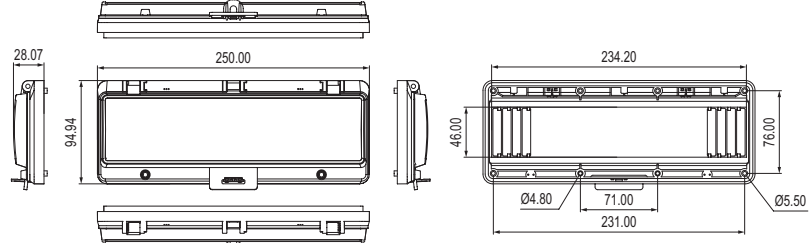
12 Way

12 Way



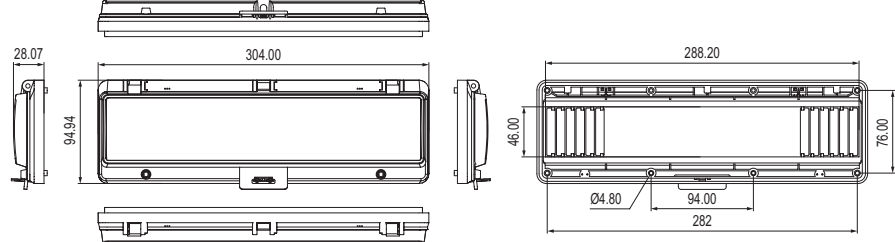
13 Way

13 Way



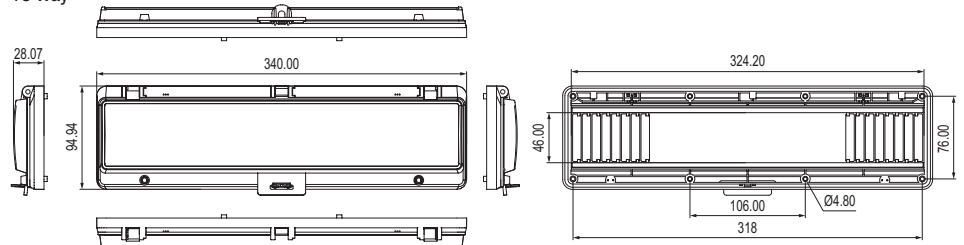
16 Way

16 Way



18 Way

18 Way



### SF 095



- Direct fixing of small appliances and 35mm DIN rails
- Simple to mount
- Self-adhesive

With Holder Fix small appliances can be mounted in enclosures significantly quicker, easier and more economically than before, without drilling holes. Mounting DIN rails is a simple matter with Holder Fix. Longer rails are mounted on several Holder Fix units and joining two rails is also not a problem. Subsequent changes and the mounting of additional appliances can be carried out with ease – even in confined spaces. Holder Fix is a self-adhesive plastic unit with an adhesion power which will bear a continuous load of 500g. The high-performance industrial adhesive band is also non-ageing and designed with safety tolerances.

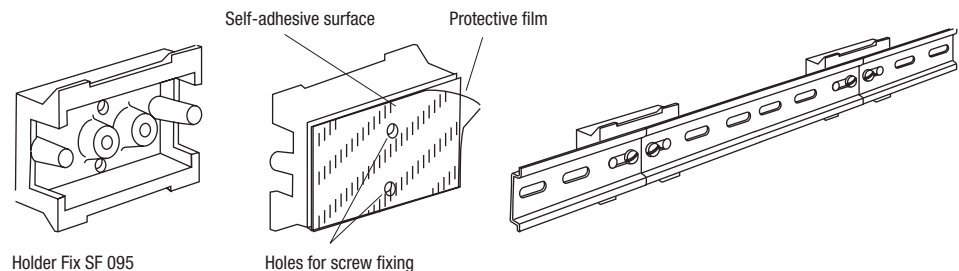
#### Technical Data

CE RoHS ISO9001 Patent

SF 095	
Load	500g after a 24h waiting period <sup>1</sup>
Mounting	self-adhesive (non-ageing, high-performance adhesive band)
Material	plastic according to UL94 V-0
Dimensions	43×38×14mm
Screw pitch	12.8mm, Ø3.6mm; for perforated 35mm DIN rails
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)

<sup>1</sup> depending on the conditions of use (e.g. surface condition, size of the device to be mounted, etc.) higher loads were achieved.

**Installation:** Holder Fix can only be mounted on smooth surfaces, e.g. metals, lacquered surfaces and plastics (except polyethylene, polypropylene and rubber). The surfaces must be dry, free from dust, oil, separating agents and other contamination.



**Note:** When using the Holder Fix as a DIN rail holder, only DIN rails (EN 60715) with perforation 18×6.2mm or 18×5.2mm can be used.

Art. No.	1 packing unit	Weight (approx.)
09510.0-01	1 pc	12g

### DIN



- 35mm DIN rails
- Simple to mount

Din guide rail is a German industrial standard. Using guide rail is an installation method for industrial electrical components. The installation of electrical components that support this standard can be easily clipped on the guide rail without fixing with screws, and maintenance is also very convenient.

Product material: high-quality high-strength cold-rolled steel electroplating, aluminum alloy.

Product standard: European EN50022

Color variants: Nickel plated yellow, white zinc plated.

Operating temperature: -45°C continuous high temperature to 100°C

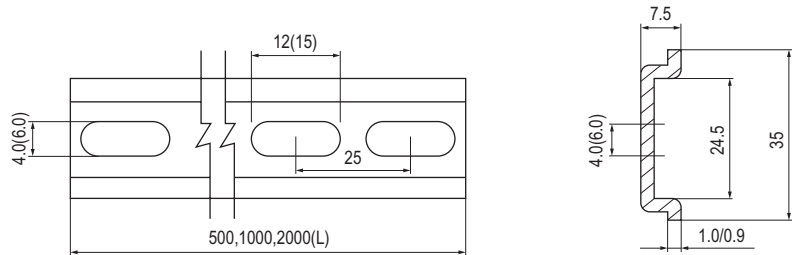
Product features: It is beautiful and has the function of anti-stress, the size is very accurate, and it is corrosion-resistant.

Others: MOQ is required for custom length or hole position.

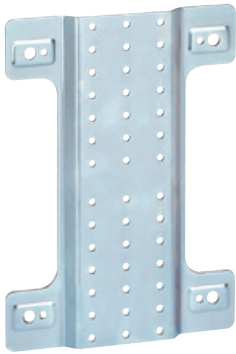
### Technical Data

CE RoHS ISO9001 Patent

DIN Rail	
Material	steel or aluminum
Mounting	screw fixing
Length	according to customer's requirement to cut
Width	35mm
Screw pitch	12.8mm, Ø3.6mm; for perforated 35mm DIN rails
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)

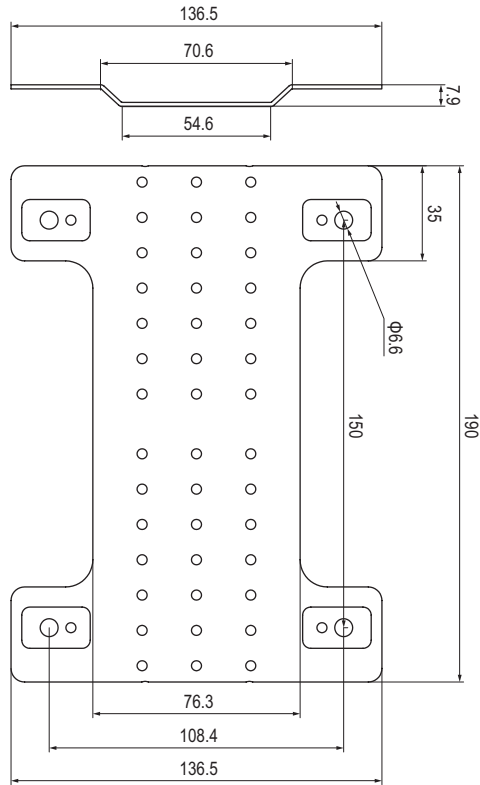


### NTL-MMB



- Confirm to RoHS
- Fit to different angle, different place, different size products installation
- Fast and easy for fixing
- Endurance high temperature and low temperature

Stainless steel material, will not get rusty. Can carry over than 20kgs weight.



Art. No.	Size	Weight (approx.)
NTL-MMB	190×136mm	219.62g

### NTL-MC



- Steel with Painting
- RAL 7035, Color Can be customer-made
- Offer waterproof protection for filter and all kinds load that fixing onto cabinet and enclosure
- Easy to install onto cabinet and enclosure by tap and screws

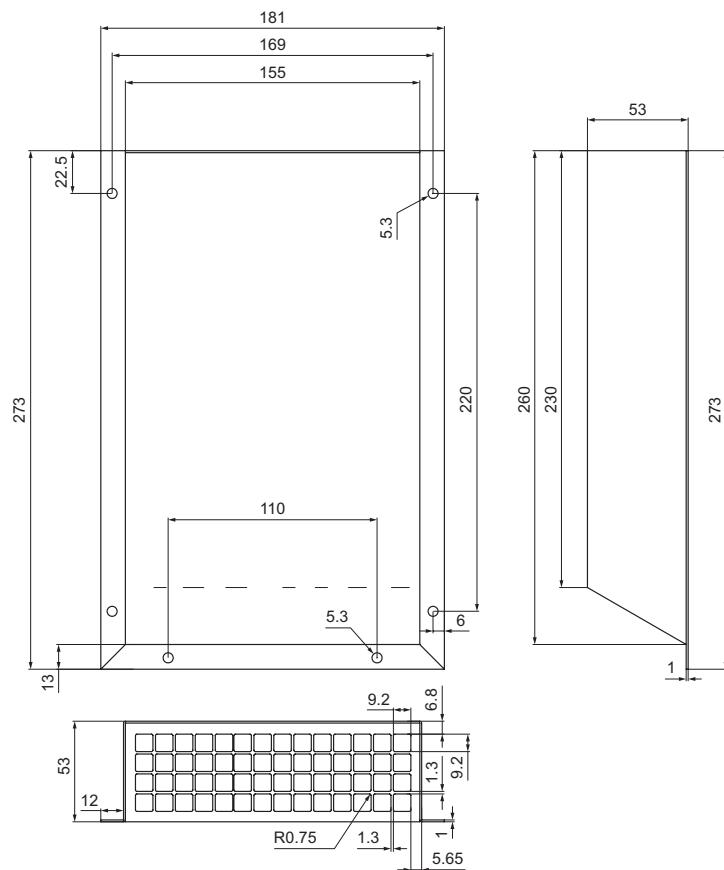
Waterproof metal cover for increasing the protection class is a protective cover for filter fans, intake and exit filters, It is used for protection against water projected by a hose and extreme climatic influences if located outdoors or in industrial applications with harsh environmental conditions.

In order to clean the filter fans or to change the filter mat, the hood can easily be removed, the cabinet does not need to be opened (safety risk).

### Technical Data

CE RoHS ISO9001 Patent

NTL-MC	
Material	steel with painting
Color	RAL 7035, RAL 7032, MUNSELL N 6.5, black(color can be customer made)
Installation Way	screw mounting or adhesive tape mounting



Art. No.	Size
NTL-MC	273×181×53mm

### NTL-FG

- PC or Nylon
- A Class quality
- Offer guard for all kinds size of fan
- Longer using life
- Never rusty



Material and Technology: It is made of low-carbon steel wire or stainless steel wire through cutting, rolling, bending and welding.

Specification: according to the blueprint and requirement of the customer's.

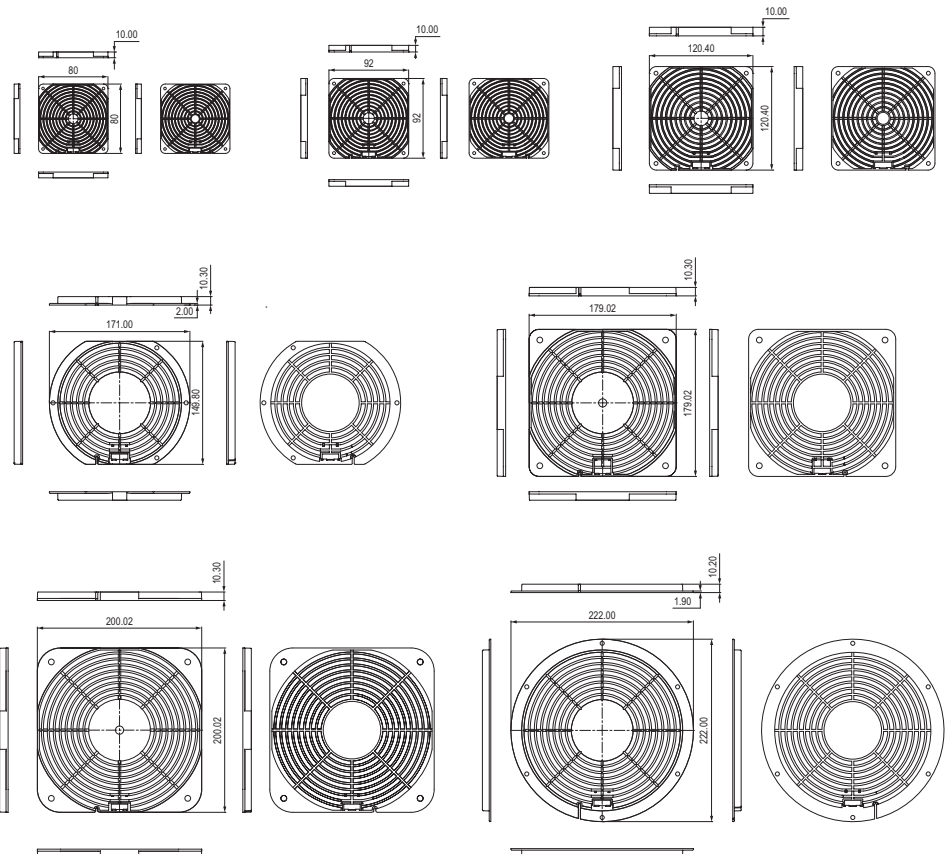
Characteristic: various mode, beautiful and practical, firm welding, corrosion resistance, durable service.

Purpose: the protection hood of blower, air condition, electric engine etc.

### Technical Data

CE RoHS ISO9001 Patent

Model	Guard for Fan Size of
NTL-FG80	80×80×25mm, 80×80×38mm
NTL-FG92	92×92×25mm, 92×92×38mm
NTL-FG120	120×120×25mm, 120×120×38mm
NTL-FG170	172×150×51mm, Ø172×55mm
NTL-FG180	180×180×65mm
NTL-FG200	200×200×60mm, 225×225×80mm
NTL-FG220	Ø222×60mm





### NTL-MG

- Steel
- A Class quality
- Offer guard for all kinds size of fan
- Longer using life
- Never rusty

Material and Technology: It is made of low-carbon steel wire or stainless steel wire through cutting, rolling, bending and welding.

Specification: according to the blue print and requirement of the customer's.

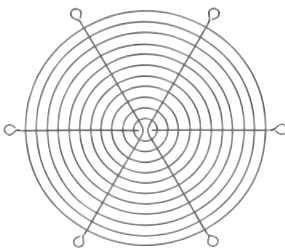
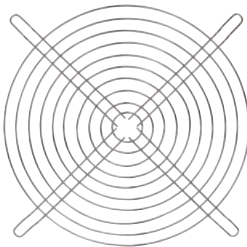
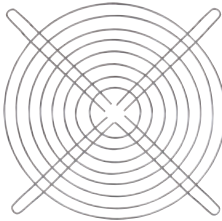
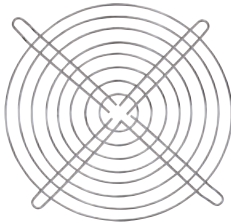
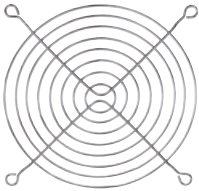
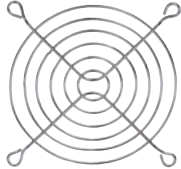
Characteristic: various mode, beautiful and practical, firm welding, corrosion resistance, durable service.

Purpose: the protection hood of blower, air condition, electric engine etc.

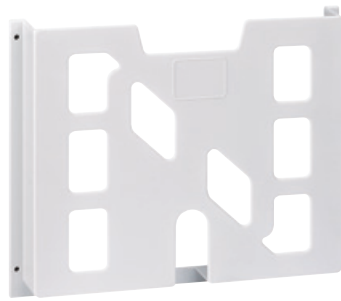
### Technical Data

CE RoHS ISO9001 Patent

Model	Guard for Fan Size of
MG-40	40×40mm
MG-50	50×50mm
MG-60	60×60mm
MG-80	80×80mm
MG-90	90×90mm, 92×92mm
MG-110	110×110mm
MG-120	120×120mm
MG-150	150×150mm
MG-172	172×172mm, 172×150mm
MG-180	180×180mm
MG-200	200×200, 225×225mm
MG-220	220×60mm
MG-280	280×280mm



### NTL-DP01



- ABS new material according to RoHS
- A class quality
- Holding for documents on cabinet and enclosure
- Easy to install onto cabinet and enclosure

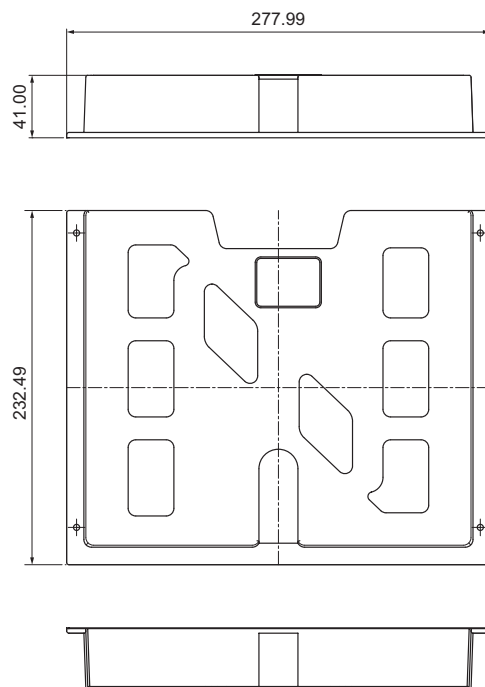
For affixing the inside or surface of the panel doors. Plastic ABS with self-adhesive fastening strips 3M adhesive tape. Screw mounting or adhesive tape mounting.

#### Technical Data

CE RoHS ISO9001 Patent

NTL-DP01	
Material	ABS according to RoHS
Color	RAL 7035, RAL 7032, MUNSELL N 6.5, black
Installation Way	screw mounting or adhesive tape mounting
The weight can carry	5KGS.

Model	Size
NTL-DP01	234×278×40mm



**NTL-F80B/92B/110B  
120B/150B/172B1  
172B2/180B/200B**

- Simple Filter
- IP40
- ABS Material



The three in One Simple Filter can be use for any place that want to purifying dirty air, also can fit with fan, we can offer different size to match with different fans.

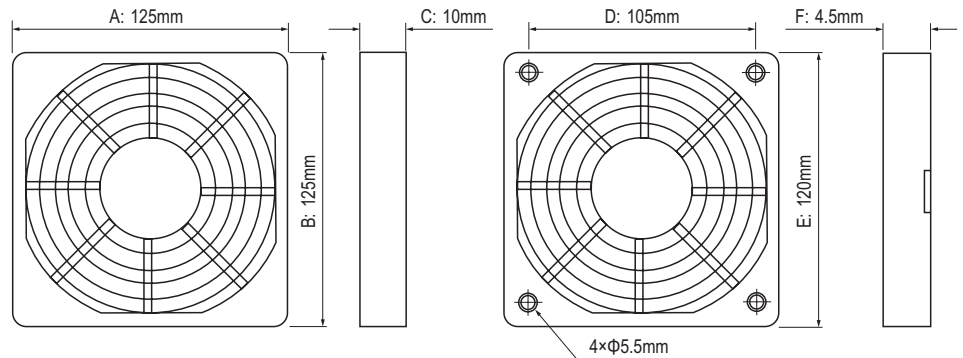
### Technical Data

**CE RoHS ISO9001 Patent**

#### NTL-F80B, 92B, 110B, 120B, 150B, 172B1, 172B2, 180B, 200B

Material	ABS
Scope	room temperature from -10 to 55 degree
Color	black
Dust removal rate	89%
IP Code	IP40

Model	Fixing Hole Distance (D)	Size (A×B×C)	Fan Size can match
NTL-F80B	71.5mm	87×87×10mm	8025, 8038
NTL-F92B	82.5mm	96×96×10mm	9225, 9238
NTL-F110B	89mm	115×115×10mm	11025, 11038
NTL-F120B	105mm	125×125×10mm	12025, 12038
NTL-F150B	122mm	156×156×10mm	15050
NTL-F172B1	162mm	177×155×10mm	17050
NTL-F172B2	162mm	177×177×10mm	1725
NTL-F180B	166mm	207×207×10mm	18065
NTL-F200B	166mm	207×207×10mm	20060, 22580



### FP Series



FP001



FP002



FP003



FP004



FP005

#### FP001 Heater Fixing Part

Material	Aluminum alloy
Size	48×39mm
Weight (approx.)	16.39g

#### FP002 Heater Fixing Part

Material	Aluminum alloy
Size	45×49mm
Weight (approx.)	8.62g

#### FP003 Heater Fixing Part

Material	Aluminum alloy
Size	63×39mm
Weight (approx.)	19.92g

#### FP004 Heater Fixing Part

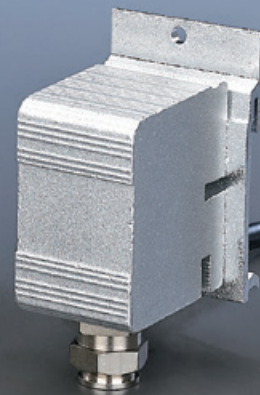
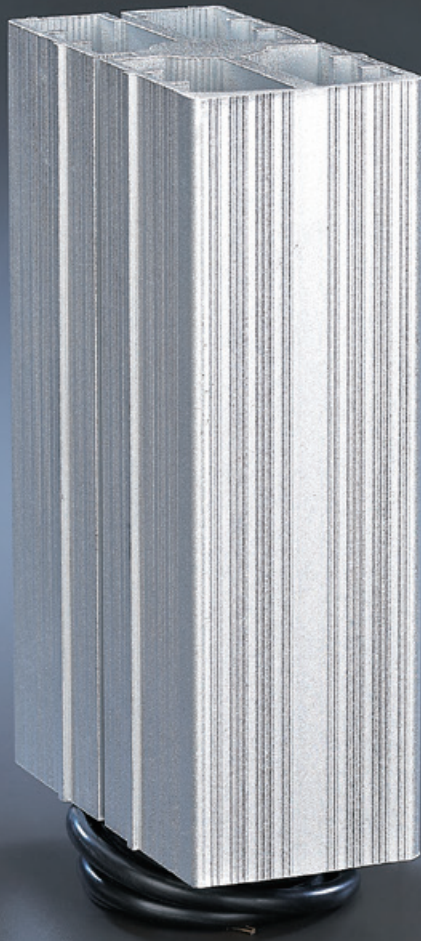
Material	Steel
Size	14×79mm
Weight (approx.)	17.39g

#### FP005 Fixing Part for NTL-FF323+28080 Fan

Material	Steel
Size	62×62mm
Weight (approx.)	68.41g

# EX Protection

Hazardous Area Thermostat, Hazardous Area Heater



CE **RoHS** ISO9001 Patent

### NTL-Ext6 (Rex 011)



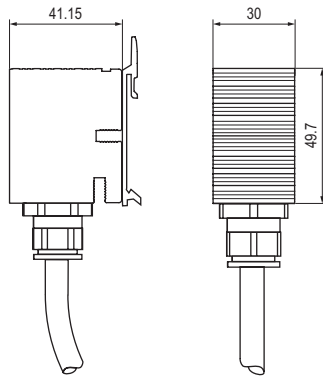
- Compact design
- Set temperature
- High switching capacity

Compact small mechanical thermostat for temperature regulation and monitoring of heaters, for example in transmitter cabinets, control panels and measuring equipment which are deployed in areas with explosion hazard. The special switch construction enables high response accuracy, small switch temperature difference and a very long service life. High switching performance allows direct control of the heaters.

CE RoHS ISO9001 Patent

#### Technical Data

NTL-Ext6 (Rex 011)	
Switch temperature difference	4K (±1K tolerance)
Sensor element	thermostatic bimetal
Contact type (1-pole)	opens with rising temperature
Service life	> 100 000 cycles
Max. switching capacity	250VAC, 1.3 (0.65) A
Max. inrush current	AC 4A for 12 sec.
Connection	Si HF - JZ 3×0.5mm <sup>2</sup> , length 1m
Mounting	mounting bracket with nut M8 (see illustration)
Casing	aluminium, black anodised
Dimensions	length 110mm
Weight	approx. 0.2kg
Fitting position	variable
Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP65 / I (earthed)



Art. No.	Ambient temperature <sup>1</sup>	Switch-off temperature	Ex protection type
NTL-Ext6.0	0 to +60°C	+15°C (±4K tolerance)	Ex d IIC T6 Gb Dusts: Ex tb IIIC T85°C Db IP6X
NTL-Ext6.1	+32 to 140°F	+25°C (±4K tolerance)	Ex d IIC T6 Gb Dusts: Ex tb IIIC T85°C Db IP6X

<sup>1</sup> Ambient temperature inside of the cabinet/enclosure



**NTL-Ext5** | 50W/100W  
**NTL-Ext4** | 50W/100W/150W/200W  
**NTL-Ext3** | 50W/100W/150W/200W  
 250W

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

Compact convection heater is for use in hazardous areas for prevention of formation of condensation, temperature fluctuations, and for protection against frost in control and switch cabinets, as well as in measuring equipment.

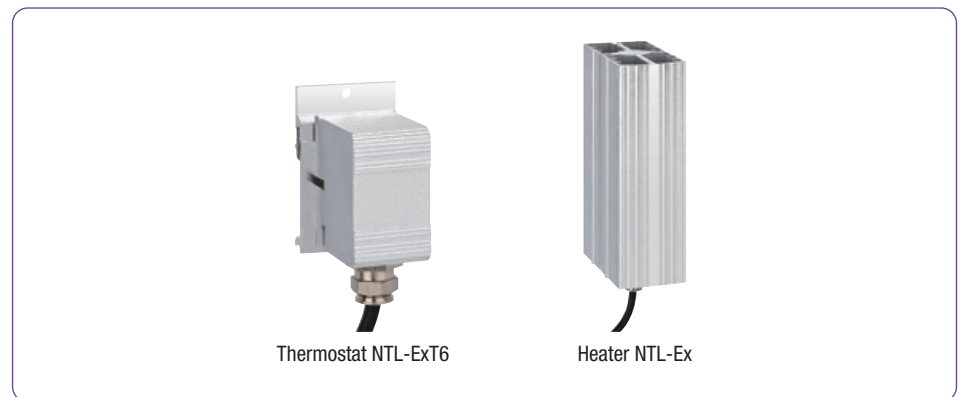
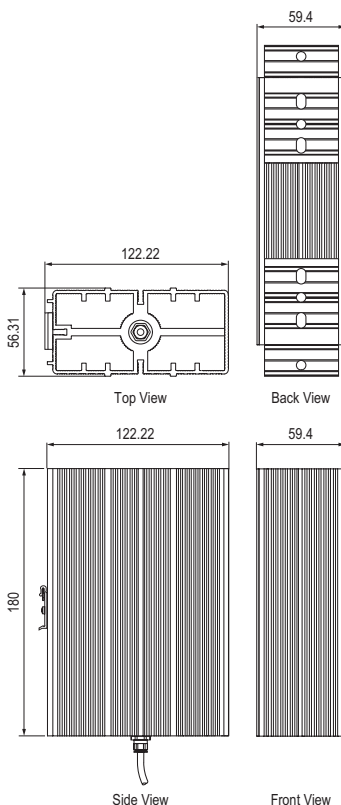


### Technical Data

CE RoHS ISO9001 Patent

#### NTL-Ext5 / NTL-Ext4 / NTL-Ext3

Heating element	high performance cartridge
Heater body	aluminium profile, silver anodised
Connection	Si HF-JZ 3x0.5mm <sup>2</sup> cable, length 1m
Connection PE	4mm <sup>2</sup>
Mounting	screw fixing
Fitting position	vertical airflow (connection on bottom)
Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP65/I(earthed)
Ambient temperature	-76 to +122°F (-60 to +50°C)



Art. No. 230VAC	Art. No. 120VAC	Heating capacity	Temperature Class	Dust Temperature Value	Length (L)	Weight (approx.)
Ext5.050.0	Ext5.050.1	50W	T5	T100°C	180mm	1.04kg
Ext5.100.0	Ext5.100.1	100W	T5	T100°C	180mm	1.05kg
Ext4.050.0	Ext4.050.1	50W	T4	T135°C	180mm	1.04kg
Ext4.100.0	Ext4.100.1	100W	T4	T135°C	180mm	1.05kg
Ext4.150.0	Ext4.150.1	150W	T4	T135°C	180mm	1.06kg
Ext4.200.0	Ext4.200.1	200W	T4	T135°C	180mm	1.06kg
Ext3.050.0	Ext3.050.1	50W	T3	T200°C	180mm	1.04kg
Ext3.100.0	Ext3.100.1	100W	T3	T200°C	180mm	1.05kg
Ext3.150.0	Ext3.150.1	150W	T3	T200°C	180mm	1.06kg
Ext3.200.0	Ext3.200.1	200W	T3	T200°C	180mm	1.06kg
Ext3.250.0	Ext3.250.1	250W	T3	T200°C	180mm	1.06kg

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This product catalogue is checked by several times to be correct. but it is only for reference all is according to products and user instruction.

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