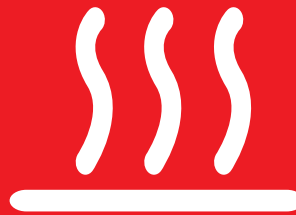




NORSTAT INC.



Heating



**THERMAL MANAGEMENT SOLUTIONS
FOR ELECTRICAL ENCLOSURES**



Anticondensation Heaters

Application

Enclosure heaters are often necessary to prevent failures or corrosion caused by low temperatures or high humidity inside the enclosure. Such conditions are likely to occur when ambient temperature is low and the equipment inside the enclosure is not powered or fails to dissipate enough heat to keep enclosure temperature above the minimum threshold. Outdoor enclosures, for instance, are almost always in such conditions.

Safety

According to the type of heater, surface temperature is limited either by a PTC or by an over temperature safety switch. This allows a safe operation and a self-adjusted heating power. All heaters are in Class II, except FSHT, FPH, FMHT and FMHTS series in Class I.

Wide range of solutions

Alfa Electric offers a wide range of solutions, all for DIN rail mounting:

- SHT – PTC heaters with connection on terminals, 25-150W
- SHT/W – PTC heaters with wire connection, 15-50W
- HT – PTC heaters with connection on terminals, 25-150W
- STHT – PTC heaters with connection on terminals, 25-150W
- FSHT – Resistor heaters, fan assisted, 250-750W
- TMX – PTC heaters, fan assisted, 150-400W
- FPH – PTC fan heaters, 1200-2000W
- MHT – PTC mini heaters, 5-30W
- FMHT – Resistor heaters, fan assisted, 75-300W
- FMHTS – Resistor heaters, fan assisted 100-300W

Fast installation

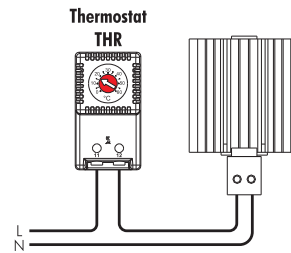
Installation is fast and simple. All units are designed for fast mounting on 35mm DIN EN 50022 rail.

ANTICONDENSATION HEATERS SELECTION WITH WATT-A-CALCULATOR



Watt-a-Calculator is a selection software that makes the best model to the specific customer application. Watt-a-Calculator is available on Alfaelectric web site. Please visit it and follow the easy instructions to find the solutions for you.

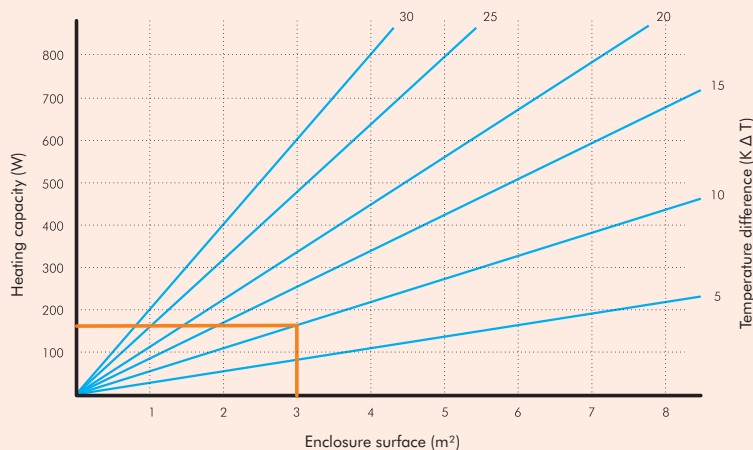
www.alfaelectric.com/wattcalc



Example:

Enclosure surface	3m ²
Temperature difference	10K
Heating capacity required	170W
Possible heater solutions	n. 2 SHT100
	n. 1 FSHT250
	n. 1 FMHT230

HEATING PERFORMANCE DIAGRAM



Specifications, values and drawings are subject to change without notice.



SHT

PTC HEATERS, TERMINAL CONNECTION



Features	Unit	SHT25	SHT50	SHT75	SHT100	SHT125	SHT150
Heating Capacity*	W	25	50	75	100	125	150
Power supply	V	110-250V AC or DC					
Inrush current	A	2.5	3.5	4	5	7	9.5
Delayed fuse (advised)	A	4	4	6.3	8	8	10
Heating element type	-	PTC resistor, self regulating					
Electrical connections	-	2 screw terminals for stranded or rigid wire 2.5 mm ²					
Protection class	-	Class II					
Protection degree EN60529	-	IP20					
Operating temperature	°C (°F)	-45/+70 (-49/+158)					
Storage temperature	°C (°F)	-45/+80 (-49/+176)					
Radiator	-	Extruded aluminium profile, anodized					
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022					
Installation position	-	Best efficiency in vertical position					
Dimensions HxWxD	mm	90x50x80	110x50x80	160x50x80	110x90x80	160x90x80	220x90x80
Weight (with packaging)	kg	0.23 (0.25)	0.27 (0.30)	0.43 (0.47)	0.38 (0.43)	0.59 (0.65)	0.81 (0.88)
Conformity/Certifications	-	CE					

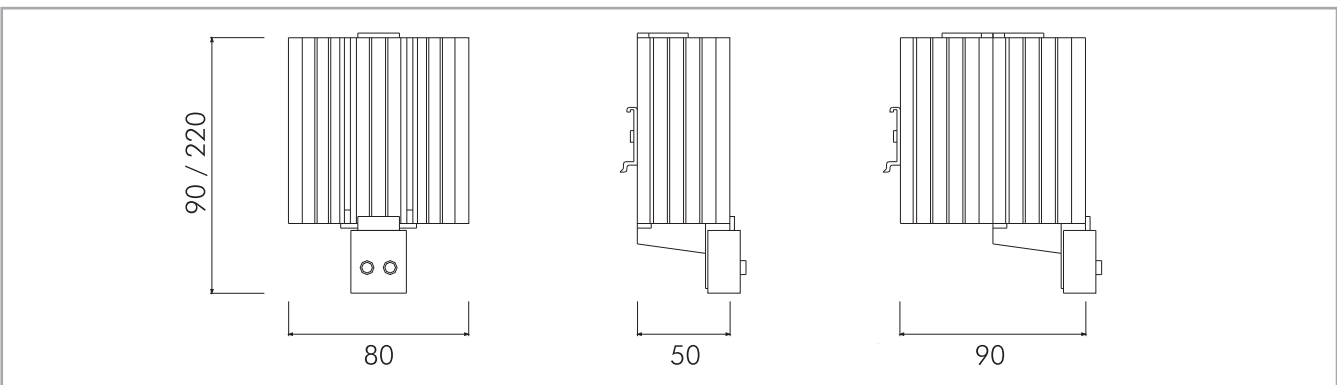
*at 20°C (68°F) ambient temperature

Versions

with integrated fixed thermostat NC 5°C	SHT25T	SHT50T	SHT75T	SHT100T	SHT125T	SHT150T
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Accessories

Thermostat NC 0-60°C	THR2
Double thermostat NC 0-60°C NO 0-60°	THR22
Hygrothermostat 0-60°C 20-90%RH	ETUH22
Hygrostat 10-90%RH	MUH



Specifications, values and drawings are subject to change without notice.



SHT W

PTC HEATERS, WIRE CONNECTION

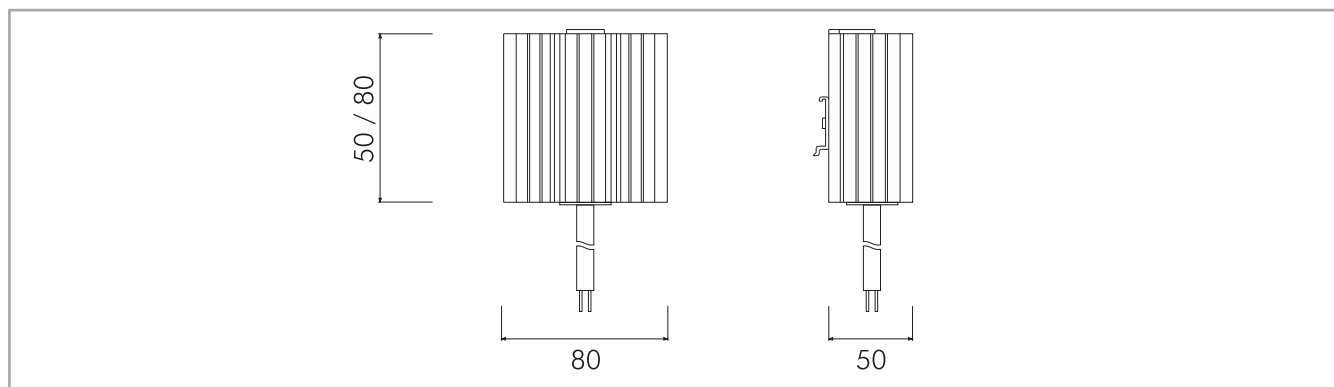


Features	Unit	SHT15W	SHT25W	SHT50W
Heating Capacity*	W	15	25	50
Power supply	V/Hz	110-250V AC or DC		
Inrush current	A	2	2.5	3.5
Delayed fuse (advised)	A	4	4	6.3
Heating element type	-	PTC resistor, self regulating		
Electrical connection	-	Silicon cable, 2x0.5mm ² , length 400mm		
Protection Class	-	Class II		
Protection degree EN60529	-	IP20		
Operating temperature	°C (°F)	-45/+70 (-49/+158)		
Storage temperature	°C (°F)	-45/+80 (-49/+176)		
Radiator	-	Extruded aluminium profile, anodized		
Mounting	-	Clip for mounting on DIN rail 35mm EN50022		
Installation position	-	Best efficiency in vertical position		
Dimensions HxWxD	mm	50x50x80	60x50x80	80x50x80
Cable length	mm	400	400	400
Weight (with packaging)	kg	0.2 (0.25)	0.24 (0.27)	0.28 (0.31)
Conformity/Certifications	-	CE		

*at 20°C (68°F) ambient temperature

Accessories

Thermostat 0-60°C, NC contact	THR2
Double thermostat NC 0-60°C / NO 0-60°C	THR22
Hygrothermostat 0-60°C / 20-90%Rh	ETUH22
Hygrostat 10-90%Rh	MUH



Specifications, values and drawings are subject to change without notice.




HT

COMPACT PTC HEATERS

Compact heaters series with minimum DIN rail foot-print.



Features	Unit	HT25	HT50	HT75	HT100	HT150
Heating Capacity*	W	25	50	75	100	150
Power supply	V	120-240V AC or DC				
Inrush current	A	2.5	3.5	4	5	9.5
Delayed fuse (advised)	A	4	4	6.3	8	10
Heating element type	-	PTC resistor, self regulating				
Electrical connections	-	Silicon cable, 2x0.5 mm ² , l. 400 mm		2 screw terminals for stranded or rigid wire 2.5 mm ²		
Protection class	-	Class II				
Protection degree EN60529	-	IP20				
Operating temperature	°C (°F)	-45/+70 (-49/+158)				
Storage temperature	°C (°F)	-45/+80 (-49/+176)				
Radiator	-	Extruded aluminium profile				
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022				
Installation position	-	Best efficiency in vertical position				
Dimensions HxWxD	mm	100x40x40		140x59x61		220x59x61
Weight (with packaging)	kg	0.29 (0.24)		0.34 (0.38)		0.57 (0.62)
Conformity/Certifications	-	CE - UL  File n. E301228				

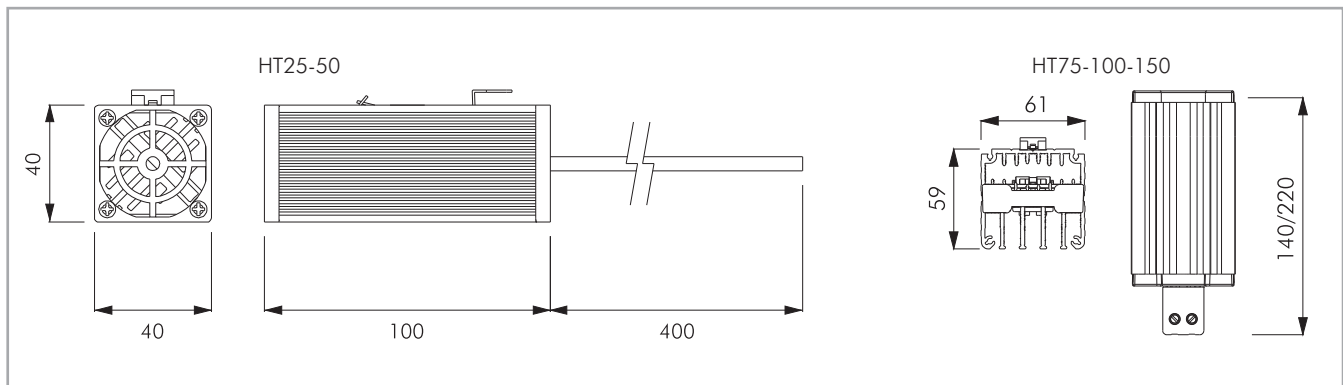
*at 20°C (68°F) ambient temperature

Versions

with integrated fixed thermostat NC 5°C	-	HT75T	HT100T	HT150T
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Accessories

Thermostat NC 0-60°C	THR2
Double thermostat NC 0-60°C NO 0-60°	THR22
Hygrothermostat 0-60°C 20-90%RH	ETUH22
Hygrostat 10-90%RH	MUH



Specifications, values and drawings are subject to change without notice.



STHT

TOUCH SAFE PTC HEATERS

Optimized design to achieve lower surface temperature and increased heat transfer efficiency. A thermo-resistant plastic shield surrounds the unit to prevent direct contacts with high temperature internal parts.



Features	Unit	STHT25	STHT50	STHT75	STHT100	STHT150
Heating Capacity*	W	25	50	75	100	150
Power supply	V	120-240V AC or DC				
Inrush current	A	2.5	3.5	4	5	9.5
Delayed fuse (advised)	A	4	4	6.3	8	10
Heating element type	-	PTC resistor, self regulating				
Electrical connections	-	2 screw terminals for stranded or rigid wire 2.5 mm ²				
Protection class	-	Class II				
Protection degree EN60529	-	IP20				
Operating temperature	°C (°F)	-45/+70 (-49/+158)				
Storage temperature	°C (°F)	-45/+80 (-49/+176)				
Radiator	-	Extruded aluminium profile, with plastic cover				
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022				
Installation position	-	Best efficiency in vertical position				
Dimensions HxWxD	mm	125x41x41		140x63x70		220x63x70
Weight (with packaging)	kg	0.16 (0.19)		0.42 (0.46)		0.66 (0.72)
Conformity/Certifications	-	CE - UL File n. E301228				

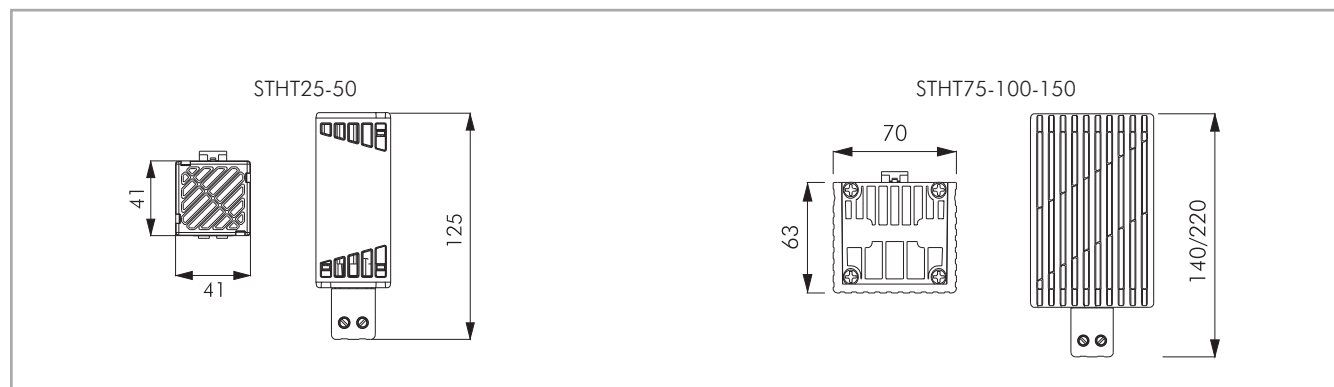
*at 20°C (68°F) ambient temperature

Versions

with integrated fixed thermostat NC 5°C	STHT25T	STHT50T	STHT75T	STHT100T	STHT150T
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Accessories

Thermostat NC 0-60°C	THR2
Double thermostat NC 0-60°C NO 0-60°	THR22
Hygrothermostat 0-60°C 20-90%RH	ETUH22
Hygrostat 10-90%RH	MUH



Specifications, values and drawings are subject to change without notice.



FSHT

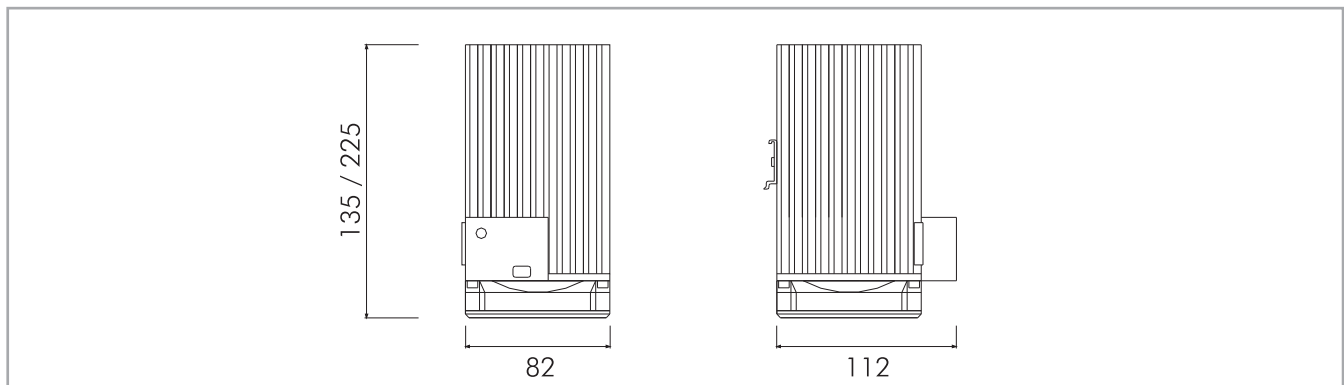
FAN ASSISTED, RESISTOR HEATERS



Features	Unit	FSHT250	FSHT251	FSHT400	FSHT401	FSHT500	FSHT501	FSHT750	FSHT751
Heating Capacity	W	250	250	400	400	500	500	750	750
Power supply	V/Hz	230/50-60	115/50-60	230/50-60	115/50-60	230/50-60	115/50-60	230/50-60	115/50-60
Max. current	A	1.2	2.4	1.9	3.8	2.4	4.8	3.6	7.2
Heating element type	-	Resistor							
Thermal protection	-	Thermal cut out fuse in case of fan failure							
Radiator	-	Extruded aluminium profile, anodized							
Axial fan	-	Ball bearing, service life 50.000 hrs at 25°C (77°F) air flow rate 35 m ³ /h, free flow							air flow rate 44 m ³ /h, free flow
Signalling	-	Green LED power ON							
Electrical connections	-	3 screw terminals for stranded or rigid wire 2.5 mm ²							
Protection class	-	Class I, earthed							
Protection degree EN60529	-	IP20							
Operating temperature	°C (°F)	-25/+70 (-13/+158)							
Storage temperature	°C (°F)	-45/+80 (-49/+176)							
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022							
Installation position	-	Best efficiency in vertical position							
Dimensions HxWxD	mm	135x112x82	135x112x82	165x112x82	165x112x82	165x112x82	165x112x82	225x112x82	225x112x82
Weight (with packaging)	kg	0.88(0.94)	0.88(0.94)	0.97(1.04)	0.97(1.04)	0.97(1.04)	0.97(1.04)	1.35(1.42)	1.35(1.42)
Conformity/Certifications	-	CE - UL File n. E301228							

Accessories

Thermostat NC 0-60°C	THR2
Double thermostat NC 0-60°C NO 0-60°	THR22
Hygrothermostat 0-60°C 20-90%RH	ETUH22
Hygrostat 10-90%RH	MUH



Specifications, values and drawings are subject to change without notice.



Fan heaters 150-400W

TMX

FAN ASSISTED PTC HEATERS

Super compact and light weight fan assisted heaters. Self-regulating PTC element. Touch safe. Spring terminal.

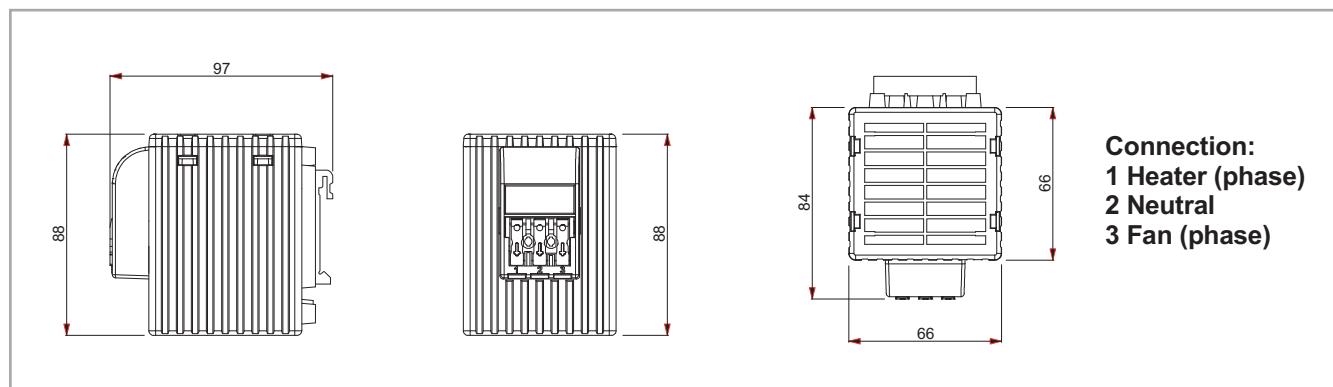


Features	Unit	TMX150.00	TMX150.10	TMX250.00	TMX250.10	TMX300.00	TMX300.10	TMX400.00	TMX400.10
Heating Capacity*	W	150	150	250	250	300	300	400	400
Power supply	V/Hz	230/50-60	115/50-60	230/50-60	115/50-60	230/50-60	115/50-60	230/50-60	115/50-60
Delayed fuse (advised)	A	6.3	10	6.3	10	6.3	10	6.3	10
Electrical connection	-	Spring terminals							
Protection class	-	Class II							
Protection degree EN60529	-	IP20							
Operating temperature	°C (°F)	-40/+70 (-40/+158)							
Storage temperature	°C (°F)	-40/+70 (-40/+158)							
Air flow rate	m ³ /h	30 (free flow)							
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022							
Installation position	-	Best efficiency in vertical position							
Dimensions HxWxD	mm	88x66x97							
Weight (with packaging)	kg	0.36 (0.4)							
Conformity/Certifications	-	CE - UL File n. E301228							

*at 20°C (68°F) ambient temperature

Accessories

Thermostat NC 0-60°C	THR2
Double thermostat NC 0-60°C NO 0-60°	THR22
Hygrothermostat 0-60°C 20-90%RH	ETUH22
Hygrostat 10-90%RH	MUH



Specifications, values and drawings are subject to change without notice.



FPH

FAN ASSISTED PTC HEATERS



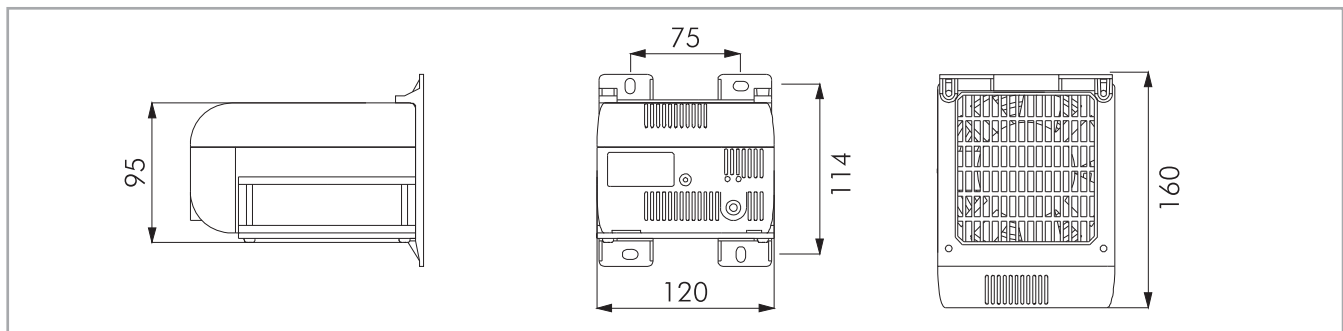
Features	Unit	FPH1200	FPH1201	FPH1500	FPH1501	FPH2000	FPH2001
Heating Capacity	W	1200	1200	1500	1500	2000	2000
Power supply	V/Hz	230/50-60	115/50-60	230/50-60	115/50-60	230/50-60	115/50-60
Heating element type	-	PTC resistor, self regulating					
Thermal protection	-	Thermal cut out in case of fan failure (auto-reset for 100,000 cycles)					
Casing	-	Plastic according to UL94 V-0, black					
Axial fan	-	Ball bearing, service life 50 000 hrs at 25°C (77°F), air flow rate 160 m3/h, free flow					
Control operation	-	optional					
Electrical connections	-	3 screw terminals for stranded or rigid wire 2.5 mm2					
Alarm output	-	optional 2 screw terminals for alarm signal 5-30V DC / 0,5A					
Protection class	-	Class I, earthed					
Protection degree EN60529	-	IP20					
Operating temperature	°C (°F)	-40/+70 (-13/+158)					
Storage temperature	°C (°F)	-45/+80 (-49/+176)					
Mounting	-	Screw fixing (M4)					
Installation position	-	Best efficiency in vertical position					
Dimensions HxWxD	mm	95x160x120					
Weight (with packaging)	kg	1.20(1.27)					
Conformity/Certifications	-	CE					

Versions

without bimetallic thermostat	FPH1200.00	FPH1201.00	FPH1500.00	FPH1501.00	FPH2000.00	FPH2001.00
with bimetallic thermostat integrated	FPH1200.01	-	FPH1500.01	-	-	-
with electronic board integrated	FPH1200.02	-	FPH1500.02	-	FPH2000.02	-

Functions of electronic board

1. electronic temperature control
2. green LED on for proper operation, red LED on for malfunction
3. 2 screw terminals for alarm signal 5-30V DC / 0,5A



Specifications, values and drawings are subject to change without notice.



MHT COMPACT PTC HEATERS

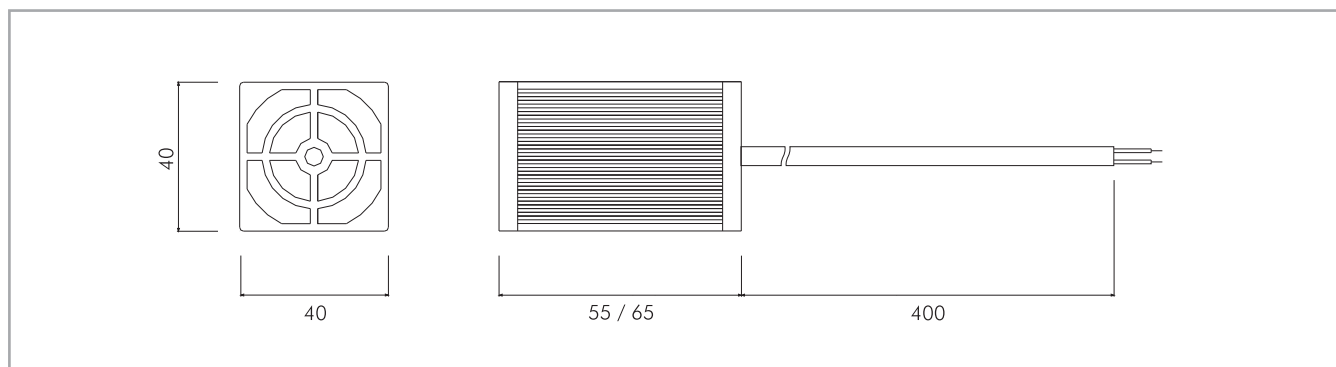


Features	Unit	MHT5	MHT15	MHT30
Heating Capacity*	W	5	15	30
Power supply	V/Hz	110-250V AC or DC		
Inrush current	A	1.5	2	3
Delayed fuse (advised)	A	4	4	4
Heating element type	-	PTC resistor, self regulating		
Electrical connection	-	Silicon cable, 2x0.5mm ² , length 400mm		
Protection Class	-	Class II		
Protection degree EN60529	-	IP20		
Operating temperature	°C (°F)	-45/+70 (-49/+158)		
Storage temperature	°C (°F)	-45/+80 (-49/+176)		
Radiator	-	Extruded aluminium profile, anodized		
Mounting	-	Clip for mounting on DIN rail 35mm EN50022		
Installation position	-	Best efficiency in vertical position		
Dimensions HxWxD	mm	55x40x40	55x40x40	65x40x40
Cable length	mm	400	400	400
Weight (with packaging)	kg	0.11 (0.12)	0.11 (0.12)	0.13 (0.14)
Conformity/Certifications	-	CE		

*at 20°C (68°F) ambient temperature

Accessories

Thermostat 0-60°C, NC contact	THR2
Double thermostat NC 0-60°C / NO 0-60°C	THR22
Hygrothermostat 0-60°C / 20-90%Rh	ETUH22
Hygrostat 10-90%Rh	MUH



Specifications, values and drawings are subject to change without notice.



FMHT

FAN ASSISTED, COMPACT HEATERS



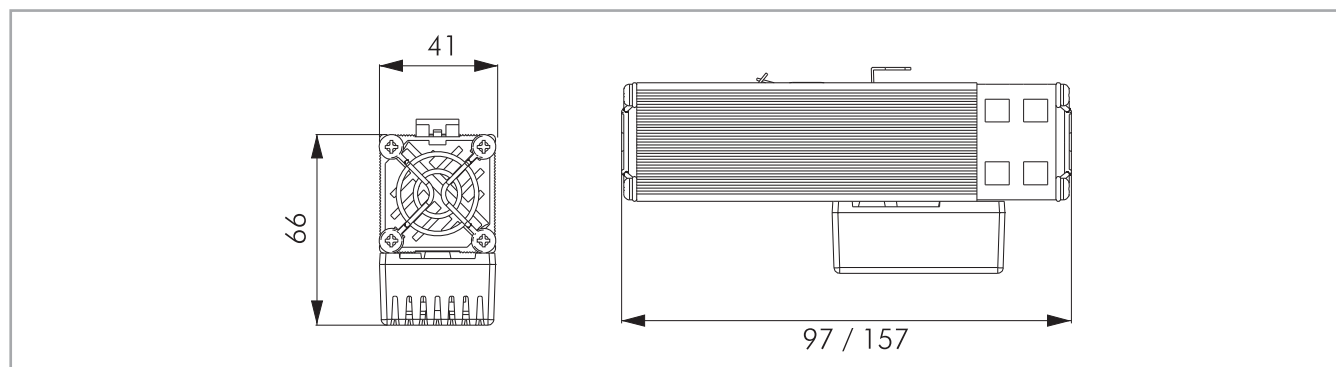
Features	Unit	FMHT75	FMHT100	FMHT150	FMHT230	FMHT300
Heating Capacity	W	75	100	150	230	300
Power supply	V/Hz	Heater 230V AC - Fan 24V DC				
Max. current	A	0.35	0.45	0.65	1.00	1.30
Heating element type	-	resistor				
Radiator	-	Extruded aluminium profile, anodized				
Axial fan	-	Ball bearing, service life 50 000 hrs at 25°C (77°F)				air flow rate 33 m³/h, free flow
		air flow rate 11 m³/h, free flow				air flow rate 33 m³/h, free flow
Electrical connections	-	5 springs terminal for stranded or rigid wire*				
Protection class	-	Class I				
Protection degree EN60529	-	IP20				
Operating temperature	°C (°F)	-25/+55 (-13/+131)				
Storage temperature	°C (°F)	-45/+80 (-49/+176)				
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022				
Installation position	-	Best efficiency in vertical installation				
Dimensions HxWxD	mm	97x41x66	97x40x66	132x40x66	142x40x66	157x40x66
Weight (with packaging)	kg	0.20(0.21)	0.20(0.21)	0.26(0.28)	0.28(0.30)	0.40(0.42)
Conformity/Certifications	-	CE				

*0.5-2.5 mm² solid wire

0.5-1.5 mm² fine stranded wire with ferrule

Accessories

Thermostat NC 0-60°C	THR2
Double thermostat NC 0-60°C NO 0-60°	THR22
Hygrothermostat 0-60°C 20-90%RH	ETUH22
Hygrostat 10-90%RH	MUH



Specifications, values and drawings are subject to change without notice.



Fan heaters 100-300W

FMHT S

FAN ASSISTED, COMPACT HEATERS

Extremely compact design and high heating capacity density. A built-in power supply and control system allows a single mains voltage power supply and provide a safe disconnection of the heating element in case that fan fails.



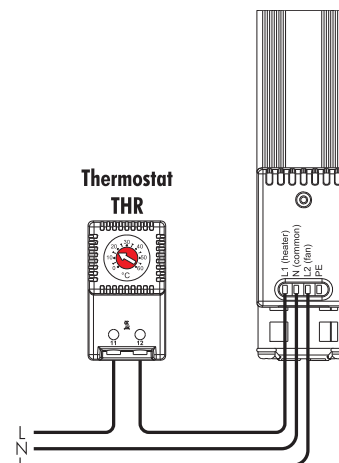
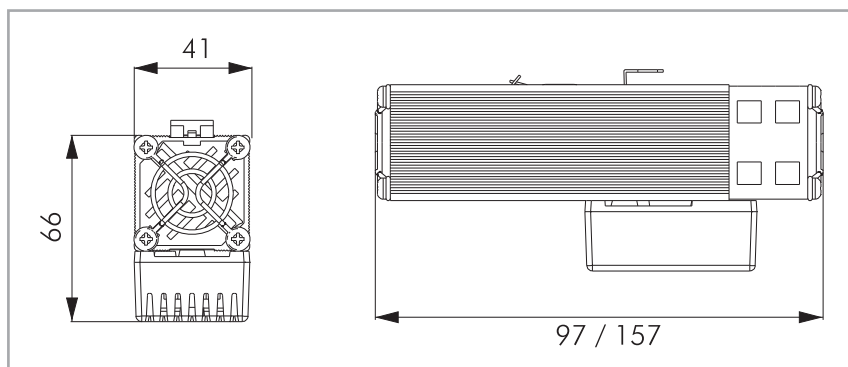
Features	Unit	FMHT100S	FMHT150S	FMHT230S	FMHT300S
Heating Capacity	W	100	150	230	300
Power supply	V/Hz	230 / 50-60			
Max. current	A	0.45	0.65	1.00	1.30
Heating element type	-	resistor			
Radiator	-	Extruded aluminium profile, anodized			
Axial fan	-	Ball bearing, service life 50 000 hrs at 25°C (77°F)			
		air flow rate 11 m ³ /h, free flow			air flow rate 33 m ³ /h, free flow
Electrical connection	-	4 spring terminal for stranded or rigid wire*			
Protection Class	-	Class I			
Protection degree EN60529	-	IP20			
Operating temperature	°C (°F)	-20/+70 (-4/+158)			
Storage temperature	°C (°F)	-45/+80 (-49/+176)			
Mounting	-	Clip for mounting on DIN rail 35mm EN50022			
Installation position	-	Best efficiency in vertical position			
Dimensions HxWxD	mm	97x41x66	132x41x66	142x41x66	157x41x66
Weight (with packaging)	kg	0.20 (0.21)	0.26 (0.28)	0.28 (0.30)	0.40 (0.42)
Conformity/Certifications	-	CE			

*0.5-2.5 mm² solid wire

0.5-1.5 mm² fine stranded wire with ferrule

Accessories

Thermostat 0-60°C, NC contact	THR2
Double thermostat NC 0-60°C / NO 0-60°C	THR22
Hygrothermostat 0-60°C / 20-90%Rh	ETUH22
Hygrostat 10-90%Rh	MUH



Specifications, values and drawings are subject to change without notice.

AEL-CATEM-18.00



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