FILTER FANS SERIES LV

- For the ventilation of control cabinets, enclosures and housings
- Different filter mats for dust collection
- LV series offers low shape and quick mounting
- EMC versions are available

New filter fans
The successful LV/GV series has been improved and redeveloped. The main features are the new design, some detail revisions, the IP 55 solution, new fans for some models as well as the extended model range. The type designations are not changed and the new parts are compatible with the existing components.

Extended model range
The model range has been extended by some models between the others (LV 405, 410 and 550) and by the new high performance top model LV 800. Today Rübsamen & Herr offers the wide-ranging series of filter fans on the market.

The new design – distinctive and timeless
The shape of the front grille was redesigned. The plane surface with chamfered edges is insensitive against dirtying. We are well aware that we go without a trendy and short-living look.

IP 55 solution
The filter fans and exhaust filters can be equipped with Z-line-filters with filter class F5 as an option. Therewith the degree of protection IP 55 is reached. The IP 55 version fans are suited for outdoor application because of the UV-resistant front grilles.

Cover plate BV 400/500
The cover plate is needed if a cut-out must be closed afterwards, for example if a cooling unit is applied. The mounting cut-out is 223 x 223 mm, the same as for the medium sized fans LV/GV 4XX/5XX.

Overview Filter Fans LV Series

Type	Air Flow Filter P15/350S /50 Hz (m3/h)		Voltage	Mounting Cut-Out (mm)	Dimensions Outside (mm)	Suitable Exhaust Filter
	Free Air	With Exhaust Filter				
LV 80	15	12	230V AC 12V / 24 V DC	68 x 68	80 x 80	GV 80
LV 100	25	15	230V AC 12V / 24 V DC	92 x 92	105 x 105	GV 100
LV 250	63	42	230V AC 12V / 24 V DC	125 x 125	148 x 148	GV 250
LV 300	115	90	230V AC 12V / 24 V DC	177 x 177	204 x 204	GV 300
LV 405	160	115	230V AC 12V / 24 V DC	223 x 223	250 x 250	GV 400/500
LV 410	250	205	230V AC 12V / 24 V DC	223 x 223	250 x 250	GV 400/500
LV 500	315	235	230V AC 12V / 24 V DC	223 x 223	250 x 250	GV 400/500
LV 600	580	385	230V AC 12V / 24 V DC	292 x 292	323 x 323	GV 600/700
LV 700	730	530	230V AC 12V / 24 V DC	292 x 292	323 x 323	GV 600/700
LV 800	930	610	230V AC 12V / 24 V DC	292 x 292	323 x 323	GV 600/700

TRINITY™ TOUCH

ROOF MOUNTED FAN

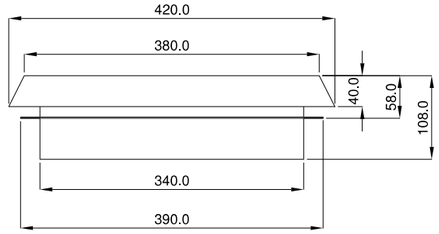
Roof-mounted fan

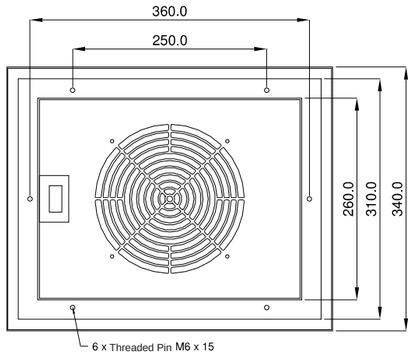
DL 400, DL 420

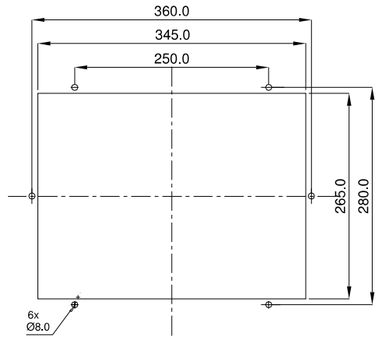
Technical data				
Type:	**DL 400**		**DL 420**	
Voltage	230 V 50/60 Hz	115 V 50/60 Hz	230 V 50/60 Hz	115 V 50/60 Hz
Amperage	0,20/0,21 A	0,35/0,40 A	0,55/0,73 A	0,60/0,80 A
Power input	40/45 W	40/45 W	110/150 W	100/130 W
Speed	1430/1700 min $^{-1}$		2650/2950 min $^{-1}$	
Temperature range	-10...+60°C		-10...+60°C	
Service life	40.000 h		40.000 h	
Noise level	58/62 dB (A)		73/76dB (A)	
Approval	CE			
colours	RAL 7035, RAL 7032			
Degree of protection	IP 44, (IP 54 with filter mat)			
Air flow: (m³/h)				
Air flow free air	405/475		690/780	
with exhaust filter	275/330		545/595	
with exhaust filter	345/400		620/680	

Accessories:		
Exhaust filter	GV 400/500 or GV 600/700	Page No. 72
Replacement filter mat	AM 420P	
Thermostats and controllers	TRS 60, TRW 60, TWR 60, TKW 60	Page No. 88, 89

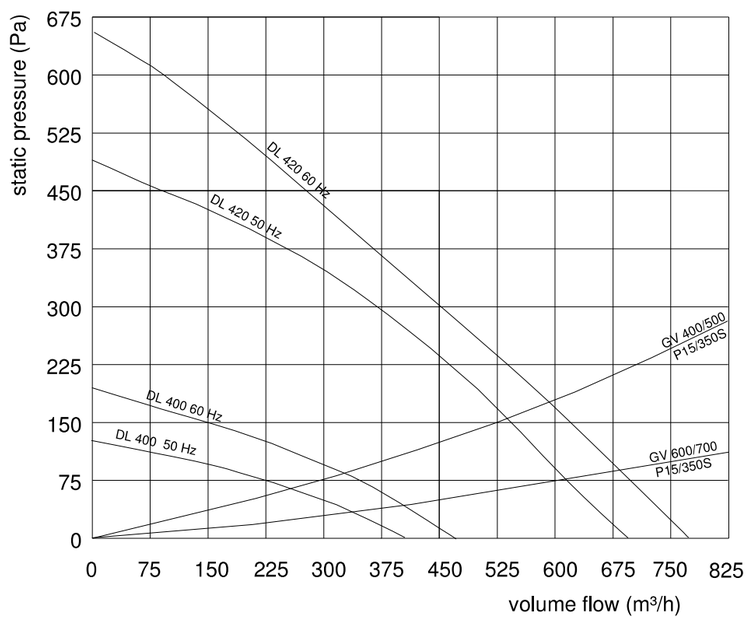
ROOF MOUNTED FAN







Performance diagram



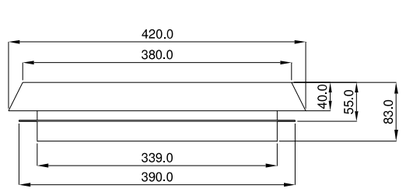
TRINITY TOUCH™

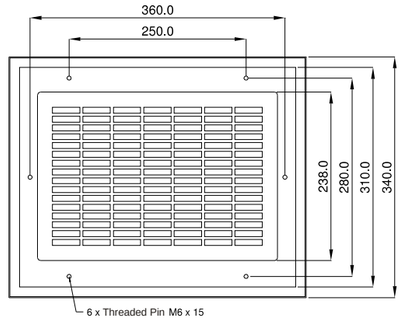
ROOF MOUNTED FAN

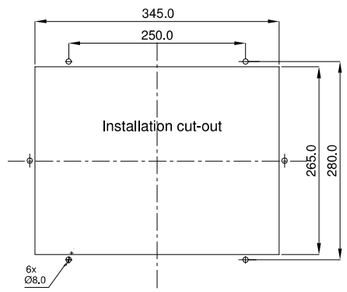
Roof-mounted air vent

DE 400

Technical data	
Colours	RAL 7035
Degree of protection	IP 54







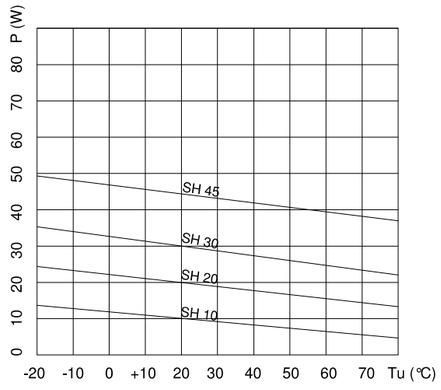
Accessories		
Replacement filter mat	AM 1235P	

HEATER FOR ENCLOSURES

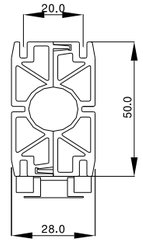
Heater for Enclosures SH 10, 20, 30, 45

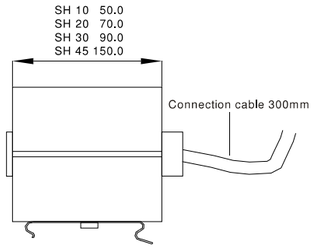


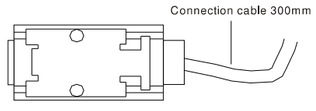
Technical data			
Type	**Configuration**	**Thermal output at 20 °C**	Range
SH 10	PTC heating element, terminal	10 W	110 – 240 V AC/DC
SH 20		20 W	
SH 30		30 W	
SH 45		45 W	
Special voltages			
SH 20	PTC heating element, terminal	20 W	12 – 24 V AC/DC
SH 30		30 W	



Thermal output depending upon ambient temperature







Accessories		
Thermostats and controllers	TRS 60, TRW 60, TWR 60, TKW 60	Page No. 88, 89
Thermostats and controllers	HYW 90	Page No. 90

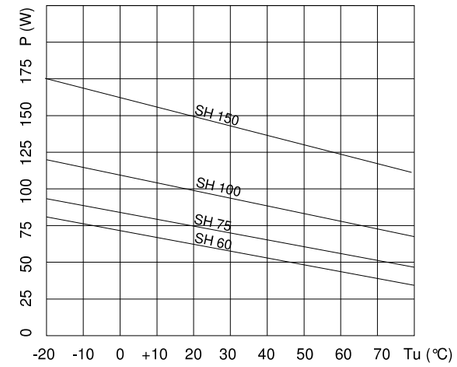
TRINITY™ TOUCH

HEATER FOR ENCLOSURES

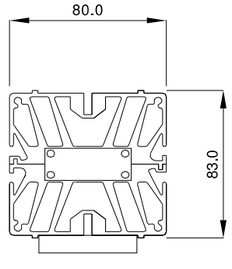
Heater for Enclosures SH 60, 75 (D), 100 (D), 150

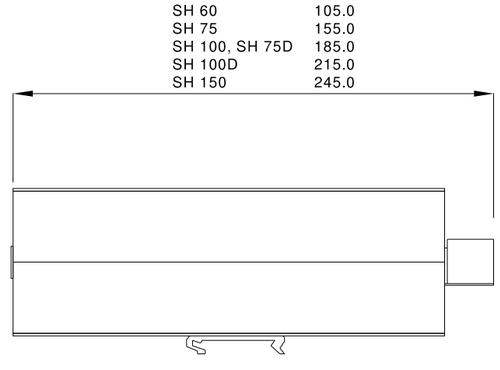


Technical data			
Type	**Configuration**	**Thermal output at 20 °C**	Range
SH 60	PTC heating element, terminal	60 W	110 – 240 V AC/DC
SH 75		75 W	
SH 100		100 W	
SH 150		150 W	
Special voltages			
SH 60	PTC heating element, terminal	50 W	12-24 V AC/DC
SH 75D	invariable resistor, terminal	70 W	400 V AC/DC
SH 100D		100 W	



Thermal output depending upon ambient temperature



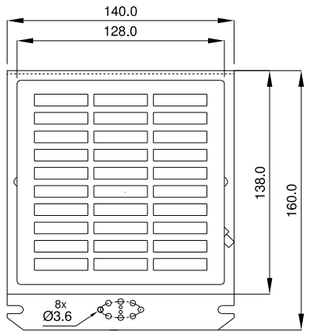


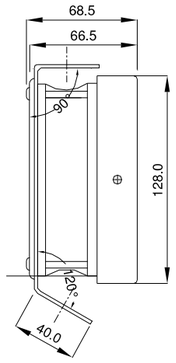
Accessories		
Thermostats and controllers	TRS 60, TRW 60, TWR 60, TKW 60	Page No. 88, 89
Thermostats and controllers	HYW 90	Page No. 90

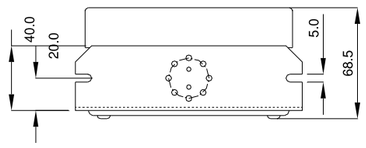
HEATER FOR ENCLOSURES

Heater for Enclosures SH 220L

Technical data			
Type	**SH 220L**		
Operating voltage	230 V 50/60 Hz		
Amperage	1,0 A	2,2 A	4,4 A
Thermal output	220 W	500 W	1000 W
Dimensions	140 x 160 x 70 mm		
Connection	Terminal		







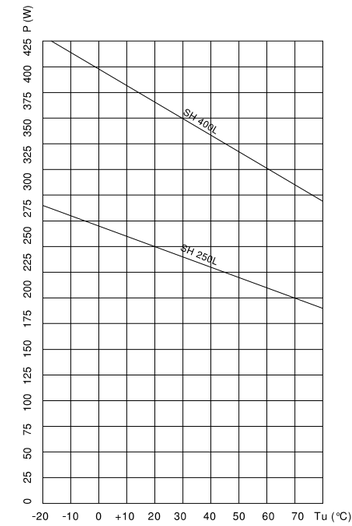
Equal holes on both sides

Accessories		
Thermostats and controllers	TRS 60, TRW 60, TWR 60, TKW 60	Page No. 88, 89
Thermostats and controllers	HYW 90	Page No. 90

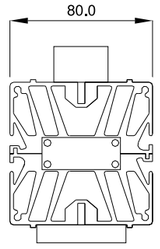
HEATER FOR ENCLOSURES

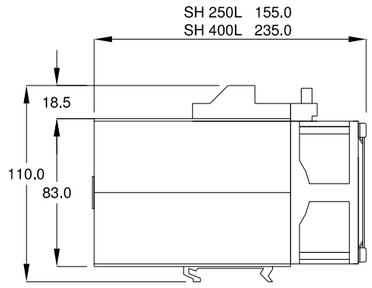
Heater for Enclosures SH 250L, 400L

Technical data		
Type	**SH 250L**	**SH 400L**
Operating voltage	230 V 50/60 Hz	
Thermal output at 20° C	250 W	400 W
Connection	Terminal	
Configuration	PTC heating element, with fan	



Thermal output depending upon ambient temperature





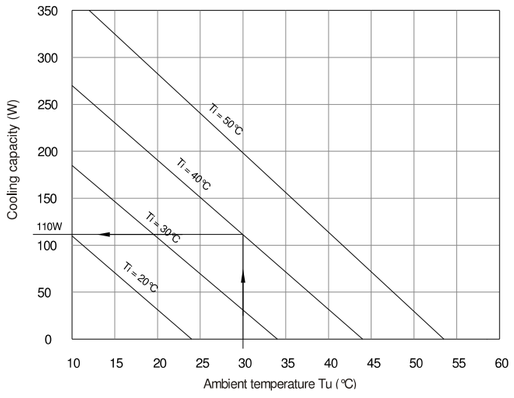
Accessories		
Thermostats and controllers	TRS 60, TRW 60, TWR 60, TKW 60	Page No. 88, 89
Thermostats and controllers	HYW 90	Page No. 90

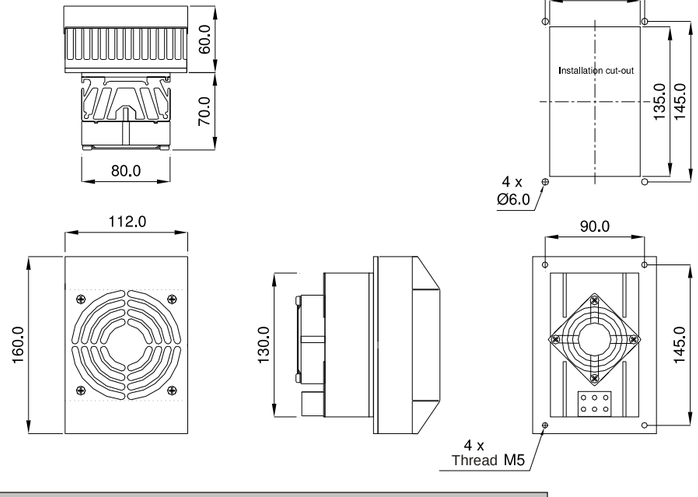
THERMOELECTRIC COOLER

Thermoelectric cooler **PK 30**

Technical data	
Cooling capacity	30W
Operating voltage	24 V DC
Amperage	2,1 A
Operating temperature	-10…+60° C
Approval	UL, CE
Degree of protection outside	IP 43
Weight	1,7 kg

Performance curve PK 30





Accessories		
Thermostats and controllers	TRS 60, TRW 60, TWR 60, TKW 60	Page No. 88, 89
Thermostats and controllers	HYW 90	Page No. 90

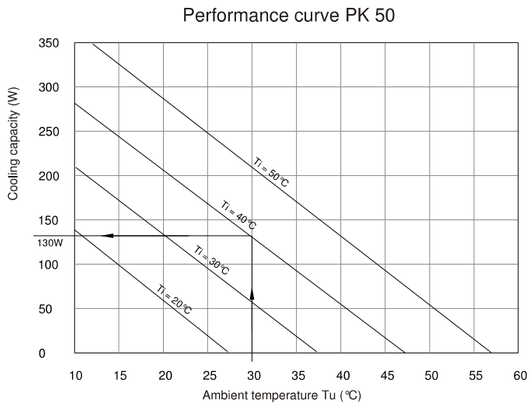
TRINITY™ TOUCH

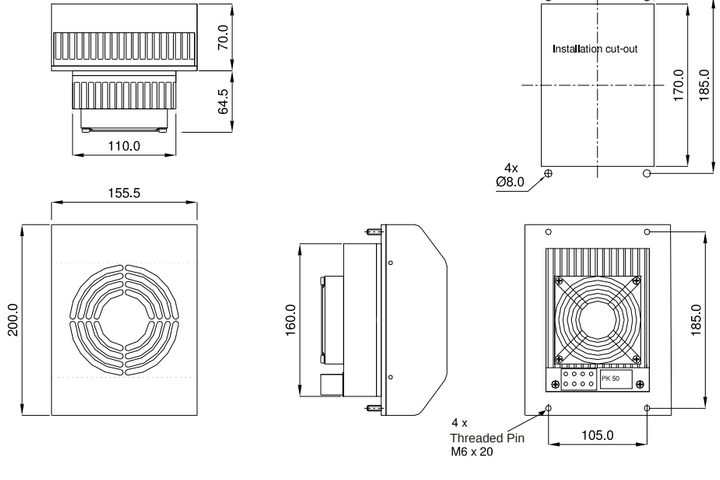
THERMOELECTRIC COOLER

Thermoelectric cooler **PK 50**

Technical data		
Cooling capacity	50 W	
Operating voltage	12 V DC	24 V DC
Amperage	5,4 A	2,7 A
Operating temperature	-10…+60° C	
Approval	UL, CE	
Degree of protection outside	IP 43	IP 65
Weight	3,9 kg	

Performance curve PK 50



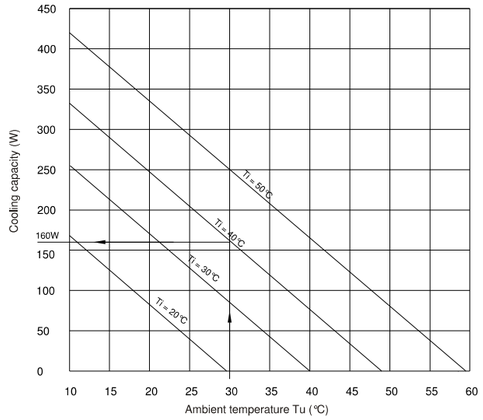


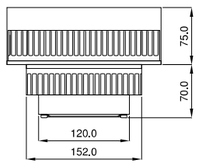
THERMOELECTRIC COOLER

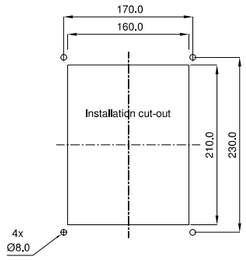
Thermoelectric cooler **PK 75**

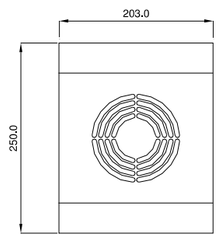
Technical data	
Cooling capacity	75 W
Operating voltage	24 V DC
Amperage	3,8 A
Operating temperature	-10…+60° C
Approval	UL, CE
Degree of protection outside	IP 65
Weight	5,5 kg

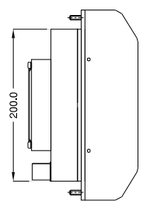
Performance curve PK 75

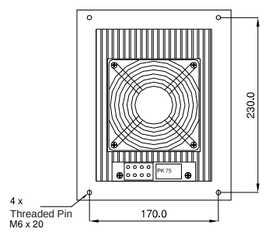












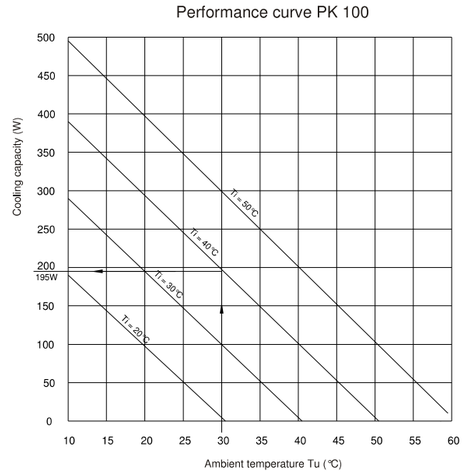
TRINITY™ TOUCH

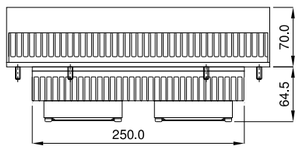
THERMOELECTRIC COOLER

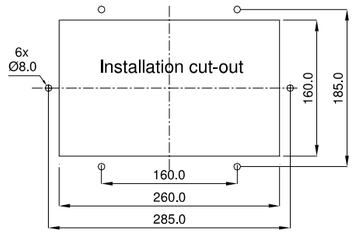
Thermoelectric cooler **PK 100**

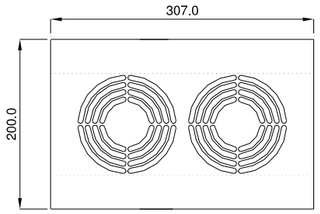
Technical data		
Cooling capacity	100 W	
Operating voltage	24 V DC	12 V DC
Amperage	5,4 A	10,8 A
Operating temperature	-10…+60° C	
Approval	UL, CE	
Degree of protection outside	IP 65	
Weight	7,2 kg	

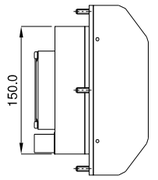
Performance curve PK 100

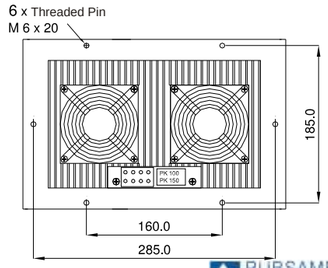










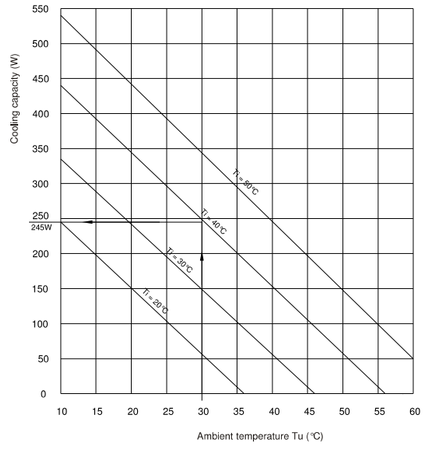


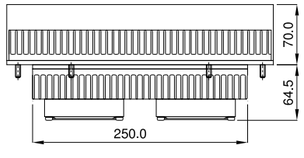
THERMOELECTRIC COOLER

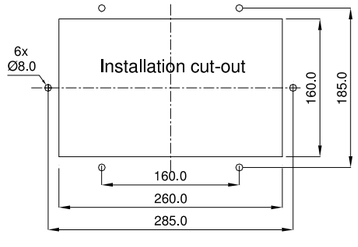
Thermoelectric cooler **PK 150**

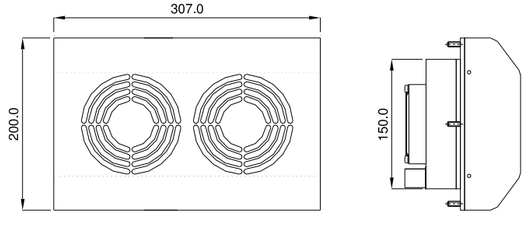
Technical data	
Cooling capacity	150 W
Operating voltage	24 V DC
Amperage	7,2 A
Operating temperature	-10…+60° C
Approval	UL, CE
Degree of protection outside	IP 65
Weight	7,3 kg

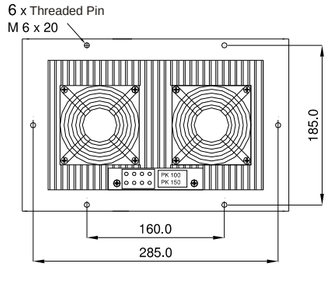
Performance curve PK 150











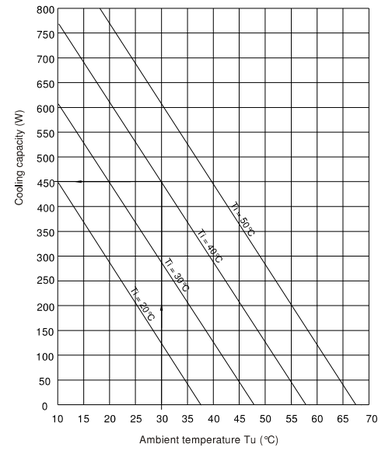
TRINITY™ TOUCH

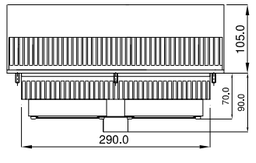
THERMOELECTRIC COOLER

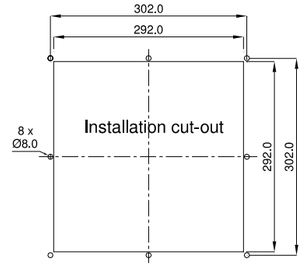
Thermoelectric cooler **PK 300**

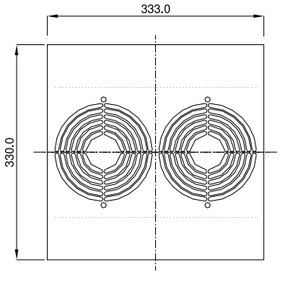
Technical data	
Cooling capacity	280 W
Operating voltage	24 V DC
Amperage	15 A
Operating temperature	-10…+60° C
Approval	CE
Degree of protection outside	IP 65
Weight	18,5 kg

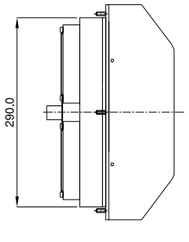
Performance curve PK 300

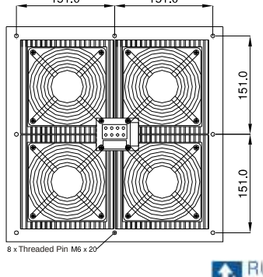








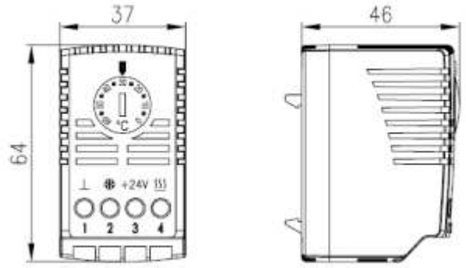


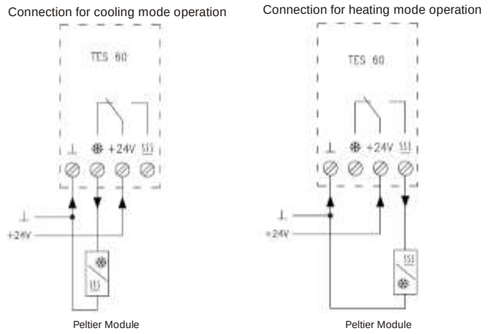


THERMOSTATS AND CONTROLLERS

Electronic Temperature Controller TES 60

- For thermoelectric coolers and heaters
- High DC switching capacity
- Small hyteresis
- Control range 0 ... 60°C
- Changeover contact
- Mounting on 35 mm DIN rail



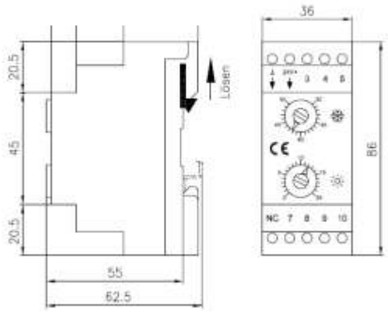


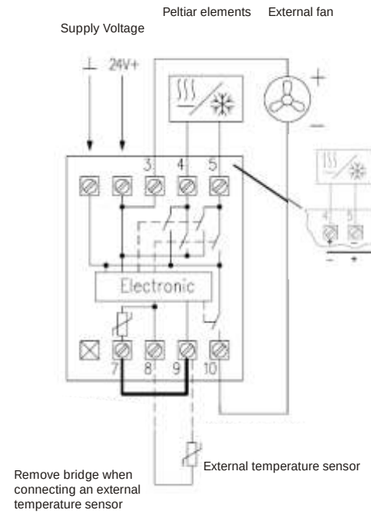
Technical data	
Supply voltage	24 V4, ±15%
Switching capacity	Max.16 A
Output	Relay with non-Isolated changeover contact
Power consumption	0.75 W
Control range	0 … 60°C
Switching difference (hysteresis)	Approx. 2 … 3 K
Sensor	Internal NTC
Protection class	III
Degree of protection	IP 20
Operating temperature	–10 … 70°C
Storage temperature	–20 … 70°C
Admissible degree of humidity	Max. 95% r.h., non-condensing
Electrical connections	Terminal screw 0.5 … 2.5 mm²
Housing material and colour	Polyamide PA 6.6 (UL94 V-0), light grey RAL 7035
Weight	70 g
Way of mounting / installation	on 35 mm DIN standard rail

THERMOSTATS AND CONTROLLERS

Electronic Temperature Controller TES 205

- Heating and cooling function
- 2 isolated control ranges
- Internal temperature sensor
- Optinal external sensor possible
- Additional terminals for fans
- Mounting on 35 mm DIN rail





Technical data	
Supply voltage	24V DC
Breaking capacity Output of Peltier element	16A relay output, Caution! Upwards of 10A or in excess of 30°C, wiring is not to be of the 1.5 mm² cross-section but of the next higher one of 2.5 mm²
Output of fan	2(1)A relay output
Power input	1W
Control range – heating	0 … 20°C
Control range – cooling	30 … 50°C
Differential (Hysteresis)	1K
Sensor	Internally or externally NTC 2K
Sensor tolerance	1K
Protection class	III
Degree of protection	IP20
Safe ambient temperature	-10 … 55°C, Caution! Note the need for 2.5 mm² connecting cross-section above 30°C or in excess of 10A
Storage temperature	-20 … 70°C
Admissible humidity	Max. 95% r.h., non-dewing
Electrical connections	Screw-type terminals 0.5 … 2.5 mm²
Weight	105 g
Housing material and colour	ABS plastic, RAL 7035 light grey
Type of installation	DIN standard 35 mm rail

THERMOSTATS AND CONTROLLERS

TRS 60, TRO 60, TWR 60

Switch cabinet temperature controller / bimetal type - Switch cabinet temperature controller / capillary type with remote sensor

1. Application / Installation

The switch cabinet temperature controller has been specially designed for the supervision and control of temperatures in switch cabinets, drink or cigarette dispensers, etc. and is installed on a DIN EN 60715 compliant standard rail. It can be installed independent of its position. However, care must be taken to install it in no other but an enclosure that complies with the protection class admitted for this purpose, such as a switch cabinet for example. In cases where the controller, for reason of space, must be installed close to heat or refrigeration sources or where it, for some other reasons, cannot be installed at the exact measuring point directly, the capillary controller with remote sensor must be used. For installation on a sheet metal wall or a profiled frame the accessory set JZ-13 (see point 4.) must be used.

2. Functioning

The switch cabinet temperature controller is available as break contact (heating function), make contact (cooling function) or as changeover contact type. The device-specific functionality can be learned from the coloured temperature scale imprint on the adjusting knob (red = heating, blue = cooling, grey = changeover contact) and on the type plate (see point 3., contact). The setting of the switching point is effected by means of a screw driver for slotted screws. In order to protect the controller against any inadvertent misadjustment the adjusting knob used with this device is a locking type.

3. Technical characteristics

Control range: -20 …40°C, 0 …60°C or 20 …80°C (see type plate)
Switching differences (fixly adjusted):
Bimetal conrtrollers: approx.1K, approx. 3K, 4-7K (s. type plate)
Capillary controllers: <7K for capillary controllers
Contact: snap contact as break contact = NC, make contact = NO or changeover contact = CO (see type plate)
Switching capacity:
Break contact/ make contact: 100 V~ … 250 V~/10(2)A, at 4 max. 30 W
Changeover contact- heating: 100 V~ … 250 V~/10(2)A, at 4 max. 30 W
Changeover contact- cooling: 100 V~ … 250 V~/15(2)A, at 4 max. 30 W

Caution: Owing to the thermal feedback, the controller (CO) requires a supply voltage of 230 V~ !
Caution: When setting the temperature of the break contact (NC) and of the changeover contact (CO) to use it as a break contact, care must be taken to add the maximum hysteresis (that consists of the switching difference and the operating temperature tolerance) to the required minimum temperature. If, for instance, the temperature in the switch cabinet may not fall below 5°C, the controller must be set to 5+7+3 = 15°C (with a switching difference of 4-7 K and a tolerance of ±3 K).

Switchpoint tolerance: ±3 K
Sensor: bimetal or remote sensor with 1.5 m long capillary sensor line
Protection class: 0, admissible protection class to be ensured by the place of installation chosen
Attention! The sensor used with capillary type controllers must, in order to obtain the admissible class of protection, be connected directly to the protective conductor.
Degree of protection: IP 20
Connection: 0.5 …2.5 mm², terminal screws
Bimetal controller:
Ambient temperature: T 40 (–20 … 40°C); T 60 (0 … 60°C); T 80 (20 … 80°C)
Storage temperature: –20 … 80°C
Capillary controller:
Ambient and storage temperature: min. –20°C … max. control temperature plus 15% (see type plate)
Weight
Bimetal controller: approx. 50 g
Capillary controller: approx. 70 g
Housing: plastic (UL94 V-0), light grey (RAL 7035)
Certifications: VDE and UL (in preparation)

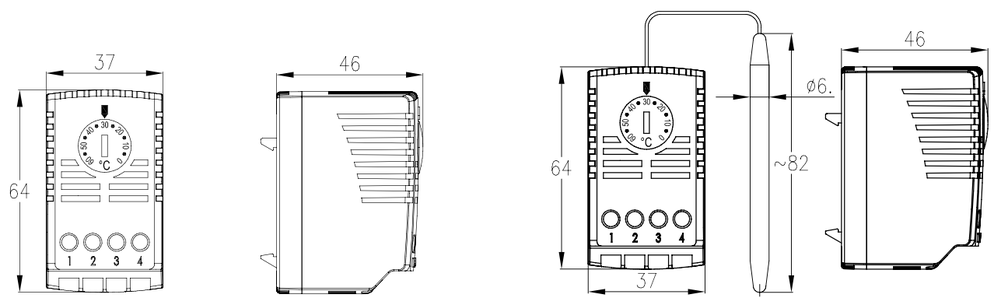
Caution!

A licensed electrician only is permitted to open this device and to install it according to the circuit diagram in the casing lid / mounting instruction. The relevant safety instructions have to be observed hereby.

4. Accessories

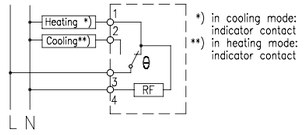
Installation set JZ-13, consisting of 38 mm long standard rail, screw and tooth-lock washer
Installation set JZ-15 to fix the capillary remote sensor

5. Dimensional drawing

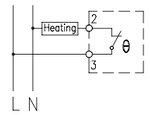


THERMOSTATS AND CONTROLLERS

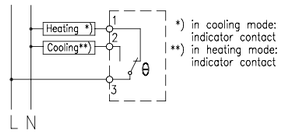
6. Switching diagrams



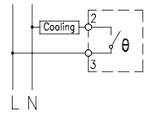
TWR 60
Changeover contact (CO)
with thermal feedback



TRO 60
Break contact (NC)



TRW 60 / TKW 60
Changeover contact (CO)



TRS 60
Make contact (NO)

7. Mounting / Demounting

The above-mentioned technical data was determined under laboratory conditions in accordance with the relevant test regulations, in particular DIN standards. The data shown is guaranteed in this respect only. It is the responsibility of the customer to ensure suitability for proposed application or for operating according to conditions of use, we can offer no warranty in this range of use. Subject to change without notice.

THERMOSTATS AND CONTROLLERS

HYW 90

Switch cabinet hygrostat

1. Application

The switch cabinet hygrostat has been specially developed for the supervision and control of temperatures in switch cabinets, drink or cigarette dispensers, etc. and is installed on a EN 50022 compliant standard rail. It can be installed independent of its position. However, care must be taken to install it in no other but an enclosure that complies with the protection class admitted for this purpose, such as for a switch cabinet, for example. For installation on a sheet metal wall or a profiled frame the accessory set JZ-13 (see point 4.) must be used.

2. Functions

The switch cabinet hygrostat described here is a change-over contact type and can be used both for humidifying (terminal ⁂) and dehumidifying (terminal ≋) The setting of the switching point is effected by means of a screw driver for slotted screws. In order to protect the controller against any inadvertent misadjustment the adjusting knob used with this device is a lokking type.

3. Mounting / Connection

Control range:	40 ... 90 % relative humidity
Switching difference:	approx. 5 %
Switching point fidelity:	±4 % related to 50 % relative humidity
Contact:	changeover contact
Switching capacity	
Humidifying: ⁂	24V~...250V~ / 2(0,2)A, at 24V~ min 100mA
Dehumidifying: ≋	24V~...250V~ / 5(0,2)A, at 24V~ min 100mA
Sensor:	polyamide band type
Protection class:	0, admissible protection class to be ensured by the place of installation chosen
Degree of protection:	IP20
Connection:	0.5 ... 2.5 mm², terminal screws
Operating temperature:	0...60°C
Storage temperture:	-20...80°C
Weight:	approx. 50 g
Housing:	plastic (UL94 V-0), light grey (RAL 7035)
Printing colour:	light blue (RAL 5012)
Certifications:	VDE and UL (in preparation)

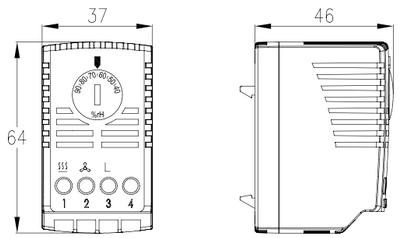
4. Accessories

JZ-13 Installation set consisting of 38 mm long standard rail, screw and tooth-lock washer

Attention!

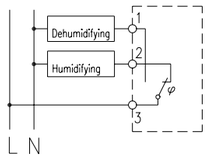
This device must not be installed by anybody other than by a professional electrician only in compliance with the schematic diagram represented in the operating instructions. When performing any such works, the existing safety regulations currently operative and in force must be observed and complied with by all means.

5. Dimensional drawing



6. Switching diagram

HYW 90 Hygrostat with changeover contact



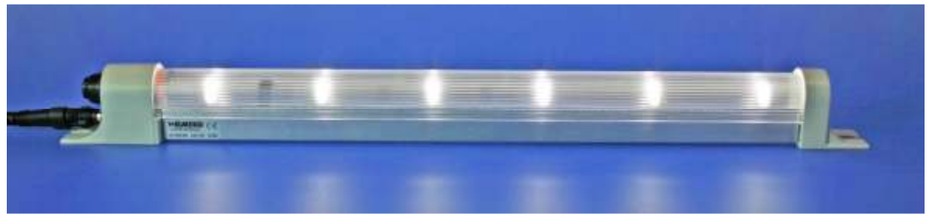
Switch cabinet heating
Humidifier

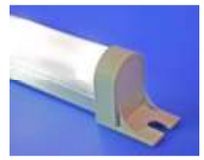
Subject to technical changes

TRINITY TOUCH™

LED LAMPS

LED enclosure lamp LE-300-SX





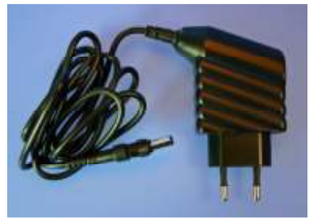
Included in delivery:

- LED-lamp LE-300-L with connection cable
- 2 solenoid foils
- fastening screws

- Luminous bright light with power-LED
- Power-saving
- Long lifetime
- Solenoid- or screw fastening
- Universal assembly possibilities
- With on/off switch
- Plugable connection cable
- Break solid plastic cover
- Small weight
- Multifarious applications

Technical data	LE-300-SX
Voltage	24 V DC (+10%)
Amperage	330 mA
Power input	8 W
Luminous flux	420 lm
Access	Barrel connector 2,5 mm
Temperature range for stocking and usage	-20 ... +60°C
Service life	50.000 h
Dimensions (L x B x H)	364 x 25 x 33 mm
Weight	180 g

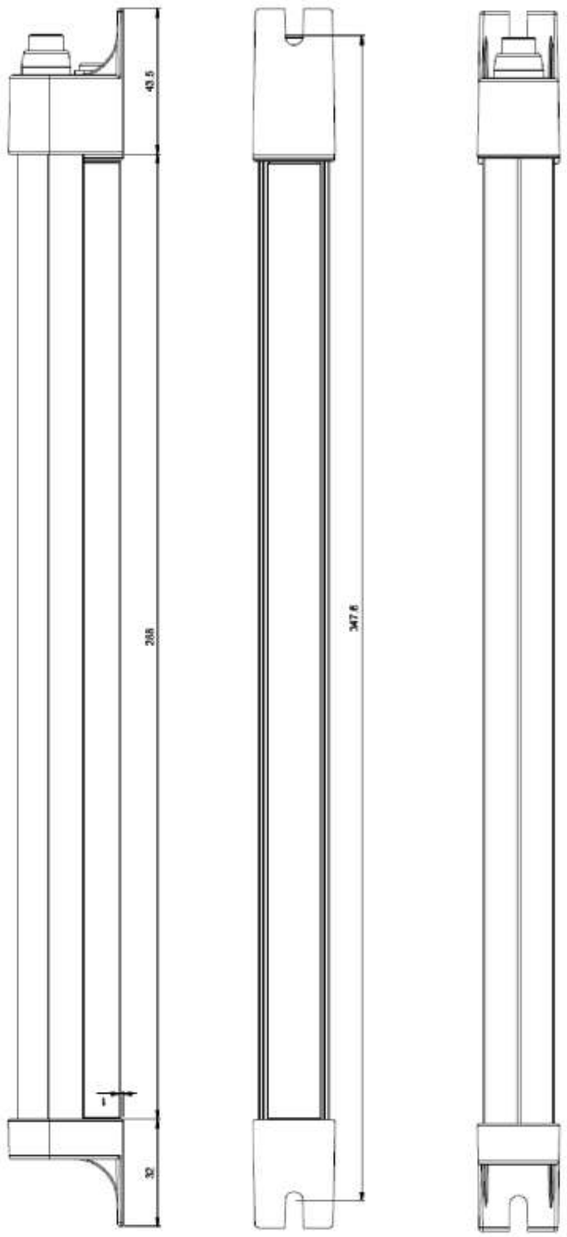
Accessories	Type
Wall power supply 230V AC / 24V DC	**SN-LE-230**
Door-position switch without cable with fastening accessories	**S-K**
Door-position switch with 3m cable with plug and fastening accessories	**S-K-LE-30**



SN-LE-230

S-K-LE-30

LED LAMPS



TRINITY TOUCH™

LED LAMPS

LED enclosure lamp LE-300-L

with connection cable

- Luminous bright light with power-LED
- Power-saving
- Long lifetime
- Universal assembly possibilities
- Solenoid- or screw fastening
- With fixed 2m connection cable
- Break solid plastic cover
- Small weight
- Multifarious applications

Included in delivery:

- LED-lamp LE-300-L with connection cable
- 2 solenoid foils
- fastening screws

Technical data	LE-300-L
Voltage	24 V DC (+10%)
Amperage	330 mA
Power input	8 W
Luminous flux	420 lm
Access	2 m Cable
Temperature range for stocking and usage	-20 ... +60℃
Service life	50.000 h
Dimensions (L x B x H)	355 x 25 x 33 mm
Weight	270 g

Accessories	Type
Power supply for mounting rail 85 - 264V AC / 24V DC 20W	MDR-20-24
Door-position switch without cable with fastening accessories	S-K

MDR-20-24

S-K