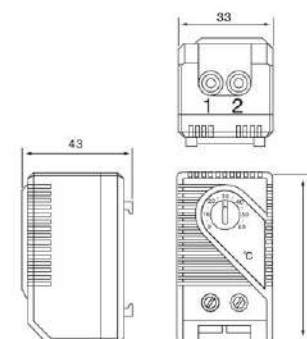


- Large setting range / 设定范围广
- Small size / 体积小
- Simple to mount / 便于安装
- High switching performance / 高切换性能

KTO 011: The rmostat(normally closed), contact breaker for regulating heaters.
KTS 011: Thermostat(normally open), contact maker for regulating of filter fans and heat exchangers or for switching signal devised when temperature limit has been exceeded.

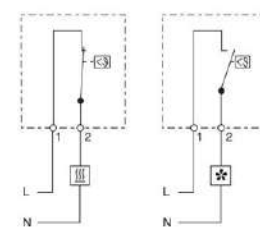
KTO 011: 温控器(常闭), 用于调控加热器。

KTS 011: 温控器(常开), 当温度超出设定值时开关装置可以启动风机或信号装置。



Thermostat
KTO 011(NC)

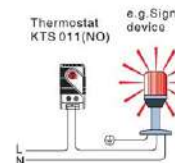
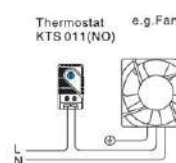
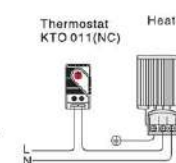
Thermostat
KTS 011(NO)



Example of connection

Heater

Filter fan,
Cooling equipment,
Signal device



接线示意图: Example of connection

设定范围Setting range	订货代号Art.No. Contact Breaker(NC)	订货代号Art.No. Contact macker(NO)
0 to +60°C	01140.0-00	01141.0-00
-10 to +50°C	01142.0-00	01143.0-00
+20 to +80°C	01159.0-00	01158.0-00
+32 to +140°C	01140.9-00	01141.9-00
+14 to +122°F	01142.9-00	01143.9-00
0 to +60°C	01146.9-00	01147.9-00



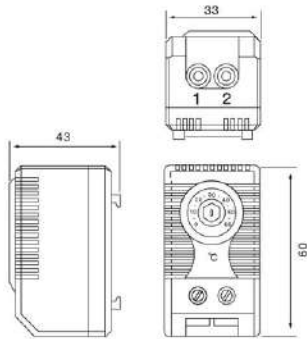
小型自动恒温调节器 Small, Compact Thermostat FKO 011/FKS 011



- Large setting range / 设定范围广
- Small size / 体积小
- Simple to mount / 便于安装
- High switching performance / 高切换性能

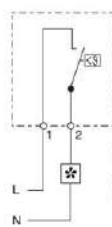
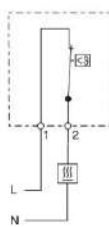
FKO 011: The rmostat(normally closed), contact breaker for regulating heaters.
FKS 011: Thermostat(normally open), contact maker for regulating of filter fans and heat exchangers or for switching signal devised when temperature limit has been exceeded.
FKO 011: 温控器(常闭), 用于调控加热器。
FKS 011: 温控器(常开), 当温度超出设定值时开关装置可以启动风机或信号装置。

Technical Data 技术参数	
Switch temperature difference 切换温差	7K(±4K tolerance) 7K(±4K公差)
Sensor element 感应元件	thermostatic bimetal 恒温双金属片
Contact type 接触器种类	snap-action contact 突跳式接触头
Contact resistance 接触电阻	<10mΩ
Service life 使用寿命	>100 000 cycles >100 000周期
Max switching capacity 最高切换负荷	250VAC, 10(2)A 120VAC, 15(2)A
	DC 30W
EMC 电磁兼容性	acc to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3 符合欧盟EN 55014-1-2, EN 61000-3-2, EN 61000-3-3标准
Connection 接线	2-pole terminal, clamping torque 0.5Nm max; rigid wire 2.5mm ² , stranded wire with wire end ferrule 1.5mm ² 2极端子台, 夹紧最大扭矩0.5Nm: 刚性线 2.5mm ² , 铜绞线(线端带铁帽)1.5mm ²
Mounting 安装方式	clip for 35mm DIN rail, EN50022(or for exit filter EF 118 Series) 卡槽适用于DIN35导轨
Casing 外壳	plastic according to UL94 V-0, light grey 塑料, UL, 浅灰
Dimensions 外形尺寸	60 x 33 x 43mm
Weight 重量	Approx. 40g 约40克
Fitting position 安装方向	Variable 任意
Operating/Storage temperature 工作/储存温度	-45 to +80°C (-49 to +176°F) / -45 to +80°C (-49 to +176°F)
Protection type 保护等级	IP20

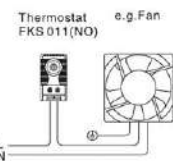
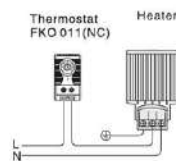


Thermostat FKO 011(NC)

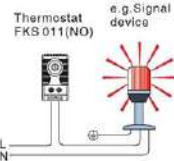
Thermostat FKS 011(NO)



Example of connection



接线示意图: Example of connection



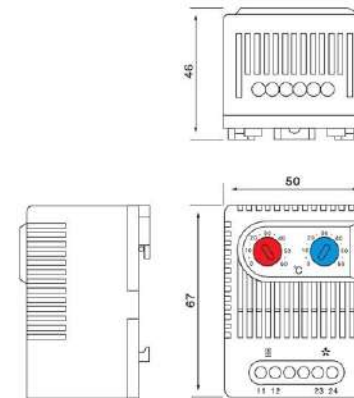
设定范围 Setting range	订货代号 Art.No. Contact Breaker(NC)	订货代号 Art.No. Contact Macker(NO)
0 to +60°C	01140.0-00	01141.0-00
-10 to +50°C	01142.0-00	01143.0-00
+20 to +80°C	01159.0-00	01158.0-00
+32 to +140°C	01140.9-00	01141.9-00
+14 to +122°F	01142.9-00	01143.9-00
0 to +60°C	01146.9-00	01147.9-00

加热散热两用型恒温器 Dual Thermostat ZR 011

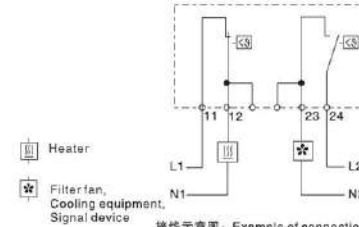


- NO and NC in one casing 常开常闭一体化设计
- Separate adjustable temperatures 温度独立控制
- High switching capacity 灵敏度高
- Terminals easily accessible 便于安装
- Clip fixing 导轨卡装

Two thermostats in one casing:
Thermostat(contact breaker, normally closed) for regulating heaters.
Thermostat(contact maker, normally open) for regulating filter fans and heat exchangers or switching signal devices when temperature limit has been exceeded.
Heaters and cooling equipment can be switched independently from each other with temperature offset as opposed to the usual change-over contacts.
一盒两恒温器
恒温器(常闭): 断路器调节加热器。
恒温器(常开): 接触器调节过滤风扇, 热文换或温度超过限时切换到信号装置。
相对于普通转换连接, 加热器和散热设备彼此可以独立切换。



Thermostat ZR 011(NC/NO)



接线示意图: Example of connection

Technical Data 技术参数	
Switching temperature difference 切换温差	7K(±4K tolerance) 7K(±4K公差)
Sensor element 感应元件	Thermostatic bimetal 恒温双金属片
Contact type 接触器种类	snap-action contact 突跳式接触头
Contact resistance 接触电阻	<10mΩ
Service life 使用寿命	>100 000 cycles >100 000周期
Max switching capacity 最大切换量	250VAC, 10(2)A 120VAC, 15(2)A ADC 30W
EMC 电磁兼容性	acc to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3 符合欧盟EN 55014-1-2, EN 61000-3-2, EN 61000-3-3标准
Connection 接线	4-pole terminal, clamping torque 0.5Nm max; 4极端子台, 最大扭矩0.5Nm
Mounting 安装方式	Clip for 35mm DIN rail, EN50022 35mm DIN导轨卡装(EN50022)
Casing 外壳	Plastic according to UL94 V-0, light grey UL94 V-0 浅灰色塑料
Dimensions 尺寸	67 x 50 x 46mm
Weight 重量	Approx. 90g 大约90g
Fitting position 安装方向	Variable 任意
Operating/Storage temperature 工作/储存温度	-45 to +80°C (-49 to +176°F)
Protection type 保护等级	IP20

订货代号 Art.No.	设定范围 Setting range	设定范围 Setting range
01172.0-00	contact breaker, normally closed 0 to +60°C	contact maker, normally open 0 to +60°C
01172.0-01	contact breaker, normally closed +32 to +140°F	contact maker, normally open +32 to +140°F
01175.0-00	contact breaker, normally closed -10 to +50°C	contact maker, normally open +20 to +80°C
01175.0-01	contact breaker, normally closed +14 to +122°F	contact maker, normally open +68 to +176°F
01176.0-00*	contact maker, normally open 0 to +60°C	contact maker, normally open 0 to +60°C
01176.0-01*	contact maker, normally open +32 to +140°F	contact maker, normally open +32 to +140°F

机械式恒温器 Mechanical Hygrostat MFR 012

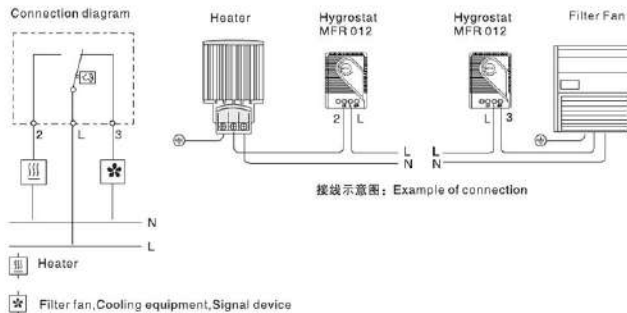


- Adjustable relative humidity 可调节相对湿度
- Change-over Contact 转换接触
- High switching capacity 转换量大
- Easily accessible terminals 易接入
- Clip fixing 导轨卡装

The electromechanical hygrostat MFR 012 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 is effectively prevented.

电子机械式恒温器MFR 012被设计用于控制电箱内的加热器，当湿度超过65%时湿气将会被排除，用这种方法可有效预防水滴和生锈。

Technical Data 技术参数	
Switch difference '切换差异'	4% RH ($\pm 3\%$ tolerance) 4% 相对湿度 ($\pm 3\%$ 公差)
Permissible air velocity 允许空气流速	15m/sec 15m/秒
Contact type 接触器类型	change-over contact 转换触点
Contact resistance 接触电阻	<10m Ω
Service life 使用寿命	>100 000 cycles >100 000 周
Min. switching capacity 最小转换量	20V AC/DC 100mA
Max. switching capacity 最大转换量	250VAC, 5(1)A
	DC 20W
EMC 电磁兼容性	acc to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3 符合标准EN 55014-1-2, EN 61000-3-2, EN 61000-3-3标准
Connection 连接方式	3-pole terminal for 2.5mm ² , clamping torque 0.5Nm max. (rigid wire 2.5mm ² , stranded wire with wire and ferrule 1.5mm ² , 3股端子线, 线径2.5mm ² , 夹紧最大扭0.5Nm, 铜包线2.5mm ² 铜包线(或铜包线)1.5mm ²)
Mounting 安装方式	clip for 35mm DIN rail, EN50022 35mm DIN导轨卡装(EN50022)
Casing 外壳	plastic according to UL94 V-0, light grey UL94 V-0 浅灰色塑料
Dimensions 尺寸	67 x 50 x 38mm
Weight 重量	Approx. 60g 约60g
Fitting position 安装方向	Variable 任意
Operating/Storage temperature 工作/储存温度	0 to +60°C (+32 to +140°F) -20 to +80°C (-4 to +176°F)
Protection type 保护等级	IP20
*at 50% RH	



订货代号Art.No.	湿度设定范围Setting range humidity
01220.0-00	35 to 95% RH

温度固定式温控器 Tamperproof Thermostats (pre-set) FTO 011/FTS 011



- Small size 体积小
- Default temperature settings 固定温度设置
- Easy to install 安装简易
- High switching tolerance 灵敏度高

Tamperproof(Pre-set)Thermostat FTO 011

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.

FTO 011温度固定式温控器
当温度下降到某一固定值时，FTO 011可启动加热器或开关信号装置。

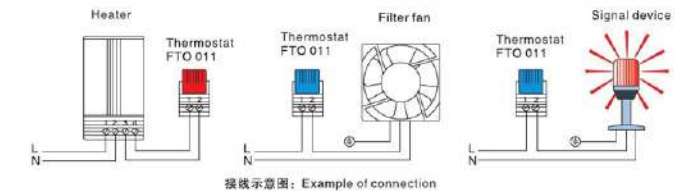
Tamperproof(Pre-set)Thermostat FTS 011

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.

FTS 011固定温度式温控器

当温度下降到某一固定值时，FTS 011可启动风机制冷装置。

Technical Data 技术参数	
Sensor element 传感元件	Thermostatic bimetal 恒温双金属片
Contact type 触点类型	Snap-action contact 快速动作触点
Contact resistance 触点电阻	<20m Ω
Service life 使用寿命	>100, 000 cycles
Max Switching capacity 开关最大容量	250V AC, 6(1.6)A 120V AC, 10(2)A DC 30V
Max inrush current 开关最大电流	AC 10A
EMC 电磁兼容	acc to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3
Connection 接线方式	2极接线端子: 2.5mm ² 导线 2-pole terminal for 2.5mm ² , torque 0.8Nm max
Mounting 安装方式	35mm DIN导轨 clip for 35mm DIN rail, EN60715 or for ext filter EF 118 Series
Casing 外壳材料	塑料UL94标准V-0防火等级, plastic according to UL94 V-0 light grey
Dimensions 外观尺寸	47 x 33 x 33mm
Weight 重量	Approx. 23g 大约23g
Fitting position 安装方式	Variable 任意
Operating/Storage temperature 操作/储存温度	-20 to +80°C (-4 to +176°F) -45 to +80°C (-49 to +176°F)
Protection type 防护等级	IP20



订货代号Art.No.	触点类型Contact	Switch-off temperature	Switch-on temperature
01160.0-00	Contact breaker(NC)	+15°C/ +59°F ($\pm 5K$ tolerance)	+5°C/ +41°F ($\pm 5K$ tolerance)
01160.0-01	Contact breaker(NC)	+25°C/ +77°F ($\pm 5K$ tolerance)	+15°C/ +59°F ($\pm 5K$ tolerance)
		Switch-on temperature	Switch-off temperature
01161.0-00	Contact maker(NO)	+50°C/ +122°F ($\pm 6K$ tolerance)	+40°C/ +104°F ($\pm 7K$ tolerance)
01161.0-01	Contact maker(NO)	+60°C/ +140°F ($\pm 6K$ tolerance)	+50°C/ +122°F ($\pm 7K$ tolerance)
01161.0-02	Contact maker(NO)	+35°C/ +95°F ($\pm 6K$ tolerance)	+25°C/ +77°F ($\pm 7K$ tolerance)

电子式继电器
Electronic Relay SM 010 (24VDC+48VDC)

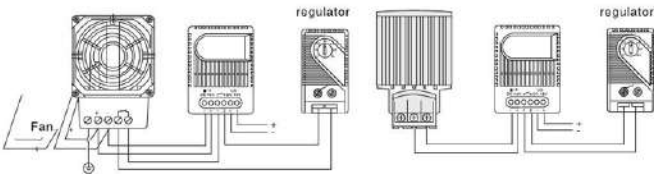
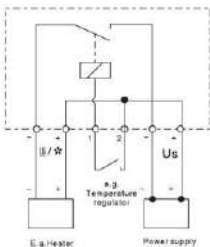
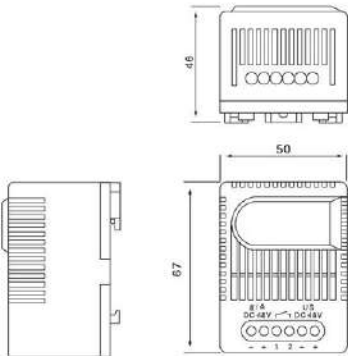


- High DC switching capacity 高直流分断能力
- Variety of applications 应用广泛
- Compact design 紧凑型设计
- Simple connection 接线简便
- Clip fixing 导轨安装

Electronic relay for switching DC appliances with high switching capacity. A separate conventional switch contact is used as controller (e.g. temperature regulator, humidity regulator). The electronic relay is available in 24VDC and 48VDC versions.

该直流电子式继电器具有较高的直流分断能力，有24VDC和48VDC两种电压可选。

Technical Data 技术参数	
Contact type 触点类型	接触开关, 常开 Contact maker, normally open (Relay/MOSFET)
Contact resistance 触点电阻	<10mΩ
Service life 使用寿命	>100,000 cycles
EMC 电磁兼容性	acc. to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3
Connection 接线方式	8 极端子, 2.5mm ² 导线 6-pole terminal, clamping torque 0.5Nm max.; rigid wire 2.5mm ²
Mounting 安装方式	35mm DIN 导轨 clip for 35mm DIN rail, EN60715 or for exit filter EF 118 Series
Casing 外壳材料	塑料 UL94 标准 V-0 防火等级, plastic according to UL94 V-0, light grey
Dimensions 外观尺寸	67 x 50 x 46mm
Weight 重量	Approx. 85g 约 85g
Fitting position 安装方式	variable 任意
Operating Storage temperature 操作/储存温度	-20 to +80°C (-4 to +176°F)
Protection type 防护等级	IP20



接线示意图: Example of connection

订货代号 Art.No.	工作电压 Operating voltage	最大开关容量 Max. Switching capacity
01001.0-00	24VDC (20-28VDC)	28VDC 16A
01000.0-00	48VDC (38-56VDC)	56VDC 16A

电子式温控器 FZK011
Mechanical Thermostat FZK 011

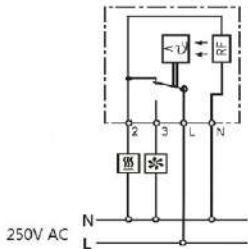
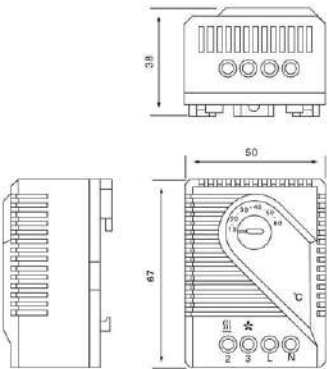


- Adjustable temperature 相对温度可调节
- High switching capacity 切换能力高
- Terminals easily accessible 接线方便
- Clip fixing 导轨安装
- Change-over contact 切换接触器

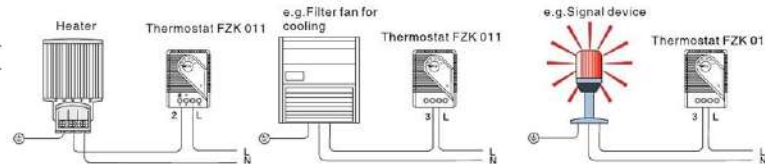
The mechanical thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact.

电子式恒温器是用于控制加热器和冷风机或信号装置。

Technical Data 技术参数	
Switch temperature difference 开关温差	4K (±1.5K tolerance)
Sensor element 传感元件	感温材料 Thermostatic bimetal NTC
Contact type 触点类型	快速动作触点 snap-action contact
Contact resistance 触点电阻	<10mΩ
Service life 使用寿命	>100,000 cycles >100,000 周期
Max Switching capacity NC 开关最大容量 NC	250V AC, 10(A)
Max Switching capacity NO 开关最大容量 NO	250V AC, 5(2A)
EMC 电磁兼容性	Acc to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3
Connection 接线方式	4 极接线端子 2.5mm ² 导线 4-pole terminal, clamping torque 0.5Nm max.; rigid wire 2.5mm ² stranded wire (with wire end ferrule) 1.5mm ²
Mounting 安装方式	35mm DIN 导轨 clip for 35mm DIN rail, EN60715 or for exit filter EF 118 Series
Casing 外壳材料	塑料 UL94 标准 V-0 防火等级, plastic according to UL94 V-0 light grey
Dimensions 外观尺寸	67 x 50 x 38mm
Weight 重量	Approx. 100g 约 100 克
Fitting position 安装方式	Variable 任意
Operating Storage temperature 操作/储存温度	-45 to +80°C (-49 to +176°F)
Protection type 防护等级	IP20



接线示意图



接线示意图: Example of connection

订货代号 Art.No.	操作电压 Operating voltage	温度设定范围 Setting range temperature
01170.0-00	230VAC	-20 to +60°C
01170.0-01	230VAC	+40 to +140°F

电子式温控器 ET011
Electronic Thermostat ET 011 (24VDC)

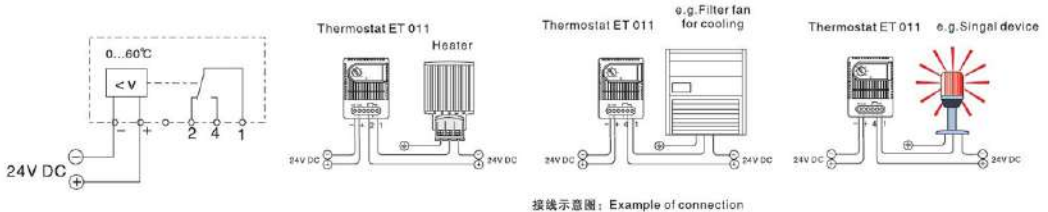
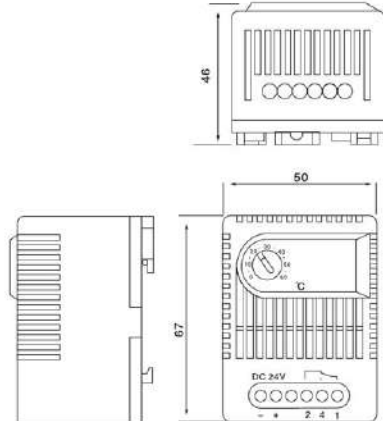


- High DC breaking capacity高直流分断能力
- Low hysteresis低滞后
- Adjustable temperature可调整温度
- Change—over contact切换接点
- Clip fixing导轨安装

Electronic thermostat for regulating high performance DC 24V 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 ET 011 has a low hysteresis making the switching point and setting accuracy more precise.

直流24V高性能电子温控器，可以调控加热器散热以及信号装置。与机械式温控器相比ET011有低滞后性，使切换点和设置精度更加精确。

Technical Data 技术参数	
Switch temperature difference开关温差	Approx.3K
Sensor element传感器元件	PTC
Contact type触点类型	切换型Change-over
Contact resistance触点电阻	<10mΩ
Service life使用寿命	>100,000 cycles >100,000周期
Max Switching capacity开关最大容量	28VDC, 16A
EMC电磁兼容性	Acc to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3
Connection接线方式	5级端子 2.5mm² 导线 5-pole terminal clamping torque 0.5Nm max. rigid wire 2.5mm² stranded wire (with wire end ferrule) 1.5mm²
Mounting安装方式	35mm DIN导轨 clip for 35mm DIN rail, EN60715 or for ext filter EF 118 Series
Casing外壳材料	塑料UL94标准V-0防火等级, plastic according to UL94 V-0 light grey
Dimensions外观尺寸	67 x 50 x 46mm
Weight重量	Approx. 80g 约80克
Fitting position安装方向	Variable 任意
Operating/Storage temperature操作/储存温度	0 to +80°C (32 to +140°F) -45 to +80°C (-49 to +176°F)
Protection type防护等级	IP20



订货代号Art.No.	操作电压Operating voltage	温度设定范围Setting range temperature
01190.0-00	24VDC(20-28VDC)	0 to +60°C

电子式温度控制器
Electronic Hygrothermostat ETF012

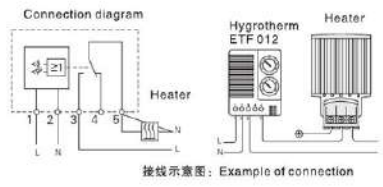
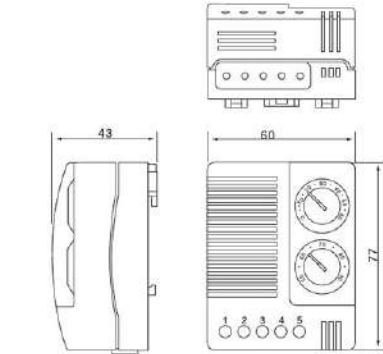


- Temperature and humidity adjustable 温度和湿度都可调节
- Optical operating display(LED) LED显示
- High switching capacity 高分断能力
- Clip fixing 导轨安装

The electronic hygrotherm senses the ambient temperature and relative humidity in an enclosure with electric/electronic component, and turns on a heater (or alternatively, a fan) at either set point, helping prevent the formation of condensation in the enclosure. The LED integrated in the adjustment knob on the active controller is lit when the connected device is in operation.

电子恒温器可以感应电器箱内的温度和相对湿度，在设置点打开加热器(或替换为风扇)，防止箱内水珠生成，连接装置工作时调节旋钮处的LED屏会亮。

Technical Data 技术参数	
Switch difference(temperature) 调节量(温度)	2K(±1K tolerance) at 25°C/77°F (50% RH) 2K(±1%公差)在25°C/77°F(50%相对湿度)
Switch difference(humidity) 调节量(湿度)	4% RH(1% tolerance) at 25°C/77°F (50% RH) 4%相对湿度(±1%公差)在25°C/77°F(50%相对湿度)
Reaction time(humidity) 反应时间(湿度)	Approx. 5 sec. 约5秒
Contact type 接触方式	Change-over contact(relay) 转换接触(继电器)
Contact resistance 接触电阻	<10mΩ
Service life 使用寿命	NC: >50,000 cycles NC>50000周期 NO: >100,000 cycles NO>10000周期
Max. switching capacity(Relay output) 最大切换能力(继电器输出)	NC: 240VAC, 6(1)A NO: 240VAC, 8(1.6)A NC: 120VAC, 6(1)A NO: 120VAC, 8(1.6)A 24VDC 4A
EMC电磁兼容性	Acc. to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3
Optical indicator 光学指示器	LED
Connection 连接方式	5-pole terminal clamping torque 0.5Nm max. 5级端子台，夹紧最大扭矩0.5Nm， Rigid wire 2.5mm² 刚性线mm² Stranded wire (with wire end ferrule) 1.5mm² 铜绞线(线束带铁包头) 1.5mm²
Mounting 安装方式	Clip for 35mm DIN rail, EN50022 35mm DIN导轨卡装(EN50022)
Casing 外壳	Plastic according to UL94 V-0, light grey, UL94 V-0 浅灰色塑料
Dimensions 尺寸	77 x 60 x 43mm
Weight 重量	Approx. 0.20kg 约0.20kg
Fitting position 安装方向	Vertical 任意
Operating/Storage temperature 工作/储存温度	0 to +60°C (+32 to +140°F) -20 to +80°C (-4 to +176°F)
Protection type 防护等级	IP20



订货代号Art.No.	操作电压Operating voltage	温度设定范围Setting range temperature	湿度设定范围Setting range humidity
01230.0-00	230VAC, 50/60Hz	0 to +60°C	50 to 90% RH
01230.9-00	120VAC, 50/60Hz	+32 to +140°F	50 to 90% RH
01230.9-01	120VAC, 50/60Hz	0 to +60°C	50 to 90% RH

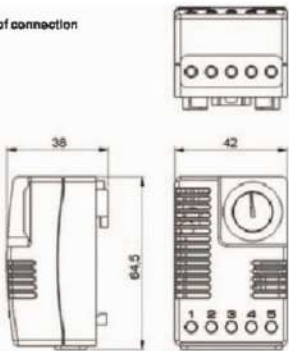
电子式恒湿器EFR 012

Electronic hygrostat EFR012



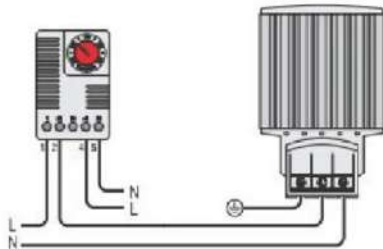
Technical Drawing 技术图

Example of connection



Hygrostat REFR 012

Heater



Adjustable and pre-set relative humidity

可调并可预设相对湿度

Optical operating display(LED) 光学工作显示器(LED)

High switching capacity 高切换性能

Clip fixing 导轨卡装

Temperature-compensated 温度补偿

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.

电子恒湿器可以感应电器箱内的相对湿度，在设置点打开加热器，防止箱内水珠生成。加热器工作时调节旋钮处的LED屏会亮。

Technical Data 技术参数

Switching difference 切换差异	5% RH(±1% RH tolerance) at 25°C / 77°F (50% RH) 5% 相对湿度 (±1% 公差) 在 25°C / 77°F (50% 相对湿度)
Reaction time 反应时间	approx. 5 sec. 约 5 秒
Contact type 接触方式	Change-over contact (relay) 转换接触 (继电器)
Service life 使用寿命	>50 000 cycles >50 000 周期
Max. switching capacity (relay output) 最大切换能力 (继电器输出)	240VAC, 8%1.5A 120VAC, 8 (1.5)A 24VDC, 4A
EMC 电磁兼容性	Acc. to EN 65014-1-2, EN 61000-3-2, EN 61000-3-3 符合欧盟 EN 65014-1-2, EN 61000-3-2, EN 61000-3-3 标准
Optical indicator 光学指示器	LED
Connection 连接方式	5-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm ² , stranded wire (with wire end ferrule) 1.5mm ² 5 极端子台, 夹紧最大扭矩 0.5Nm, 铜性线 2.5mm ² , 铜绞线(线端带铁包头) 1.5mm ²
Mounting 安装方式	clip for 35mm DIN rail, EN50022 / 35mm DIN 导轨卡装 (EN50022)
Casing 外壳	plastic according to UL94 V-0, light gray UL94 V-0 浅灰色塑料
Dimensions 尺寸	64.5 x 42 x 38mm
Weight 重量	approx. 70g 约 70g
Fitting position 安装位置	Vertical 垂直安装
Operating/storage temperature 适用温度	0 to +60°C (+32 to +140°F) / -20 to +70°C (-4 to +158°F)
Max. Storage Humidity 最大存储湿度	90% RH (non-condensation) 90% 相对湿度 (无冷凝)
Protection class 防护等级	IP20

Art.No. 型号	Operating voltage 工作电压	Setting range 设置范围
REFR01245.0-00	230VAC, 50/60Hz	40 to 90% RH
REFR01245.0-00	230VAC, 50/60Hz	85% RH pre-set
REFR01245.9-00	120VAC, 50/60Hz	40 to 90% RH
REFR01245.9-00	120VAC, 50/60Hz	85% RH pre-set

7T.81

7T.81-240	7T.81-230
1NC(SPST-NC) 10A 250V AC	1NO(SPST-NO) 10A 250V AC
AC1 AC15 (230V AC) AC3 (230V AC) DC1 (30/110/220)V	2500 VA 250 VA 1.1 KW (1/0.3/0.15)A
K 7 ± 4	
Temperature range (-45...+80)°C	
IP IP20	

17.5

4.3

43.5

33.8

30.5

62

84

88.5

CE 03 Type of action: 1B
Pollutino degree: 2

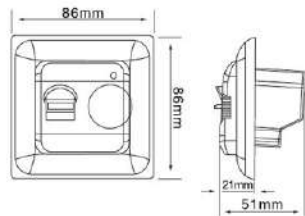
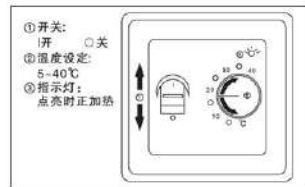
Setting range	Art. No. (NC) 7T.81-240	Art. No. (NO) 7T.81-230
-20 to +40°C	7T.81-2401	7T.81-2301
-10 to +50°C	7T.81-2402	7T.81-2302
0 to +60°C	7T.81-2403	7T.81-2303
+20 to +80°C	7T.81-2404	7T.81-2304
+32 to +140°F	7T.81-2405	7T.81-2305
+14 to +122°F	7T.81-2406	7T.81-2306
-15 to +45°C	7T.81-2407	7T.81-2307

7T.81-240

7T.81-230

Thermostst

SG-6000电子式采暖温控器 SG-6000 Series of Mechanical Thermostat



Introduction

The RTC70. xx is used for 2-position control with on/off output for the control the temperature by means of an NTC sensor placed externally or internally in the thermostat. the thermostat acquires the room temperature with its built-in sensor or floor sensor. and the heating contact will close when the room temperature falls below the selected setpoint.

Application

For the control of warm-water(floor)heating systems and direct electric heating systems used in Commercial buildings, Residential buildings, Light industrial buildings.

Features功能特性

LED indicator is light when heating is on with manual switch and knob for easy operation On / off control output for heating device
当手动打开加热开关后, LED指示灯亮。旋钮是为了方便控制加热装置输出的开与关。

Technical Data 技术参数

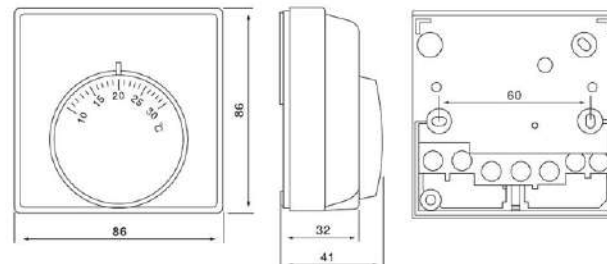
电压: AC230V	Voltage: AC230V
功耗: 5W	Power consumption: 5W
温控范围: 4°C - 45°C	Setting range: 4°C - 45°C
温度开关偏差: ±0.5K	Switching differential: ±0.5K
环境温度: -5°C - 50°C	Ambient temperature: -5°C - 50°C
外壳防护: IP20	Protective housing: IP20
外壳材质: 热塑性橡胶, NTC探头	Housing material: self-extinguishing PC Floor sensor: rubber-thermoplastic NTC sensor
外置传感器: 线长度为3m	Cable length is 3m

SG-2000 Series of Mechanical Thermostat SG-2000机械式温控器系列

Technical Data 技术参数

应用: 适用于中央空调	Application: control of central air conditioner or heating
温度控制范围: 10°C - 30°C	Temperature control range: 10°C - 30°C
工作电压: 220V~/50Hz	Work voltage: 220V~/50Hz
最大负载: 10A	Max load: 10A

Technical Drawing 技术制图



SG-7000机械式温控器系列 SG-7000 Series of Mechanical Thermostat

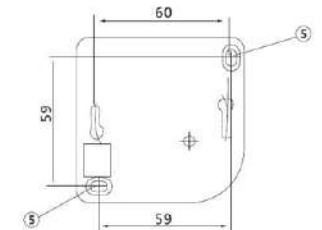
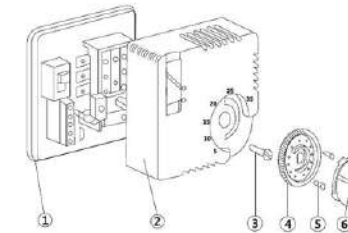
Use instructions Room thermostat

Bimetallic room thermostat for heating and air-conditioning installations
Thermal, electrical and mechanical features Breaking capacity on opening contact, 10A-250V A.C. (ohmic load) Differential: 0.5K

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 shagreened part of the knob, turn the index with a coin, to reach the same value of the thermometer. We suggest to install the equipment about 1.5m from the floor and far from any heat source.

安装后要想达到准确的范围调控, 先放一个温度计测量室内温度以作参考。然后调节旋钮把指针调到和温度计相同的值。我们建议把温控器安装在离地面或其他热源大约1.5米处。



Pattern

1. Base
2. Cover
3. Cover screw
4. Knob Lockpins, The lock pins for scale limitation
5. are to be derached from the base of the thermostat. They are Located on the fixing holes.
6. Index: The fixing of the room thermostat can be done directly on the wall by screws and nags.

- B1-With N. C. contact.
B2-With N. C. contact and ON-OFF switch
B3-With SPDT contact(change-over)
B4-With change-over contact(SPDT)and ON-OFF switch
B7-With normally closed contact on "Winter"and normally open contact on "Summer"plus "Summer-Winter"selector-Switch

Important

1. Accelerating resistance with voltage to 220-250V a.c.
2. This thermostat is provided with an accelerating resistance which must be absolutely connected in order to obtain the regulation's performances
3. The terminal 4 has thus to be connected to the neutral according to the diagram shown on the cover.
4. This connection allows also the working of the pilot lamp which indicates the operation of the heating.



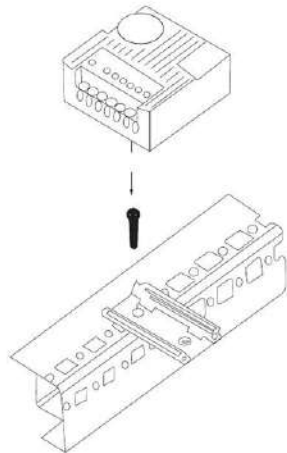
Inner temperature controller for switchgear cabinet 开关柜内部温度控制器SK3110.000

Especially used for controlling fan filter, heater and exchanger. also could be monitoring the electric cabinet inner temperature when working as signal arcuser. 主要用于控制风机、加热器和转换器，也可以用于监控配电柜内的温度。

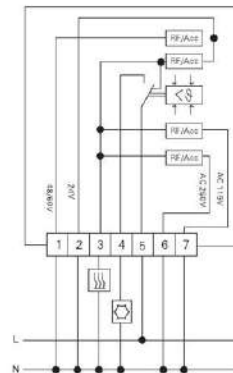
Technical Data 技术参数

Make bimetal sensor as heat sensitivity set to feedback of heat.
Contact point scheme: single switch over contact point as instant switch component allowed load of contact point
KL5-3 AC10(4)A
DC=30W KL5-4(冷却Cooling)
AC5(4)DA DC=30W
(D)=sensitivity load at COS Ø=0.6
◆ Adjusting range: -20℃ to +60℃
◆ Weight: 105 gappr
◆ Size: 70 × 70 × 33.5mm
◆ Switch discrepancy: 1 K ± 0.8K
◆ Voltage scope is wide, any type could be used from 24V to 230V
◆ Time-saving connection, terminal block could be installed with screw from outside
◆ Easy installation, could be installed to 35mm din rail vertically or horizontally, according to En50022, it could be clipped to NS/35-ES cabinet profile its accessory adapter.

温度调节范围: -20℃到+60℃
重量: 105克
外观尺寸: 70 × 70 × 33.5mm



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



- High degree of protection 保护等级高
- Easy to install 易于安装

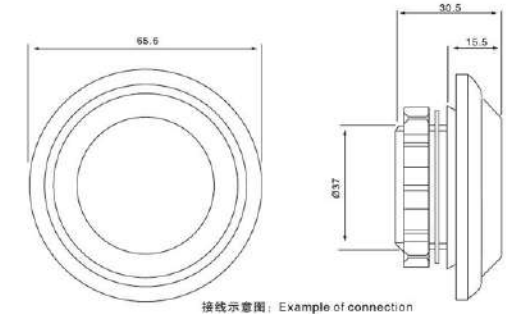
- It has become more and more important to provide a protected enclosure environment for valuable and crucial electrical and electronic components.
 - In a tightly closed enclosure, pressure differentials can occur during extreme temperature variations, such as day/night operation.
 - When this occurs, the risk of dust and humidity being absorbed into the control panel increases dramatically.
 - The specially designed pressure compensation plug DA 084 permits a controlled change in pressure.
 - It can be installed easily in any enclosure. Because of the pressure compensation plug's high degree of protection (IP45), the protection type of the enclosure will not be affected.
- ① 该装置为电气配电柜，提供一个安全的有气密保护性的环境。
② 密闭的箱子当中，因为昼夜交替时温度的变化而引起箱内气压变化。
③ 避免灰尘及湿气的吸入。
④ DA084气压补偿装置允许气压在允许范围内发生变化。
⑤ 因为气密装置有IP45高度保护能力，所以当我们把它安装在任何箱子里，都不会影响箱体的功能。

Technical Data 技术参数

Mounting 安装方式	PG29 thread with union nut
Material 材料	UL94 标准的材料 V-0 防火等级 plastic according to UL94 V-0
Air interface 与空气的接触面积	Approx. 7cm ² 约 7cm ²
Dimensions 外观尺寸	Φ65.5 × 30.5mm
Fitting position 安装方向	任意 variable
Operating/Storage temperature 工作/储存温度	-45 to +700℃ (-49 to +158°F)

Installation 安装

Make cut-out Ø37 mm 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.
在箱壁上开一个直径为37mm的孔，并装上带螺母的压力补偿装置，请确保密封圈放在在箱板的外侧，为了达到最佳密封效果，建议在箱子两侧各安装一个。



接线示意图; Example of connection

订货代号 Art. No.	型号 Model	保护等级 Protection type	包装 Packing unit	重量 Weight (approx.)
08400.0-00	without gasket 不带橡胶垫	IP45	2 pieces	62g (31g/piece)
08400.0-04	with gasket 带橡胶垫	IP45	2 pieces	62g (31g/piece)

小型半导体加热器RC016系列8W,10W,13W
Small Semiconductor Heater RC 016 Series 8W,10W, 13W

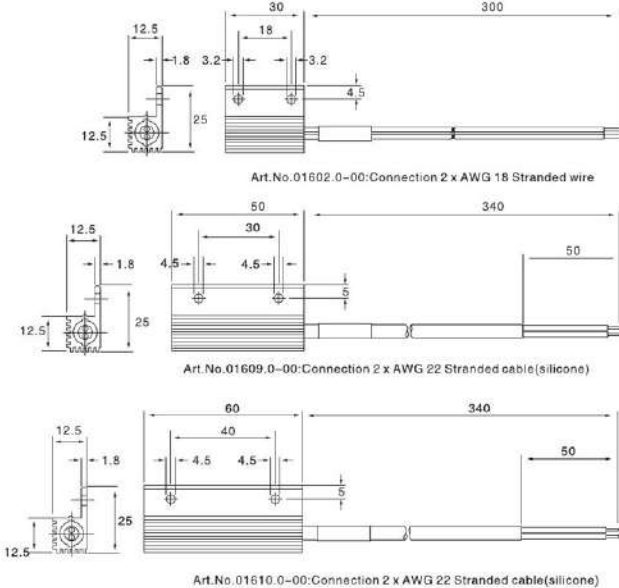
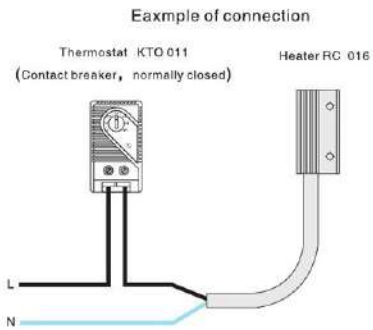


- Temperature limiting温度限定
- Wide voltage range电压范围宽
- Dynamic heating up高效加热
- Energy saving节能
- Compact轻巧

These small heaters are designed to prevent condensation and to ensure a minimum operating temperature in small enclosures.
小型加热器主要用于开关箱，可预防产生凝露。

Technical Data 技术参数	
Operating voltage工作电压	120~240V交流电/直流电(最低110V,最高265V)
Heating element加热元件	PTC resistor, self regulating and temperature limiting 正温度系数电热器, 自动调节和温度限制
Heater body加热体	aluminium, anodised阳极处理铝型材
Mounting安装方式	screw fixing 螺丝安装
Fitting position安装方向	Vertical任意
Operating/Storage temperature 工作/储存温度	-45 to +70°C (-49 to +158°F)
Protection type/Protection class 防护类型/防护等级	IP32/II(双绝缘)
Note注意	其他电压的要求

* Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%
* 工作电压低于140V AC/DC时，加热性能降低约10%



订货代号 Art. No.	功率 Heating capacity	最大电流 Inrush current max.	表面温度 Surface temperature(approx.)	接线方式 Connection	重量 Weight(approx.)
01602.0-00	8W	2.0A	150°C	2 x AWG 18 stranded wire	20g
01609.0-00	10W	2.5A	155°C	2 x AWG 22 stranded cable(silicone)	30g
01610.0-00	13W	3.0A	170°C	2 x AWG 22 stranded cable(silicone)	40g

* at 20°C(68°F) ambient temperature

小型半导体加热器HGK 047系列10W-30W
Small Semiconductor Heater HGK 047 Series 10W to 30W

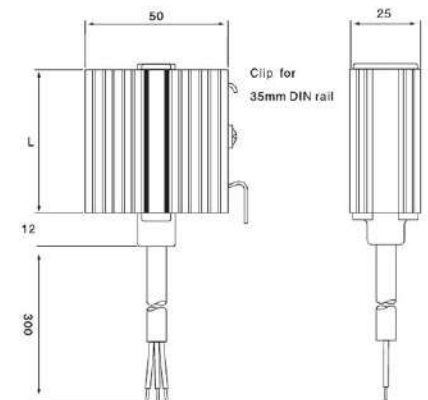
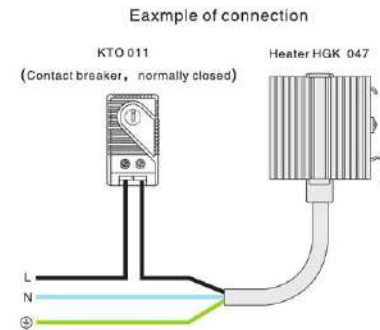


- Dynamic heating up高效加热
- Energy saving节能
- Wide voltage range电压范围宽
- Temperature limiting温度限定
- Clip fixing导轨安装

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.

加热器主要用于开关箱，可避免产生凝露，预防温度降至零下或降至最小需求值时，用此方法可避免生锈，确保箱内温度恒定。

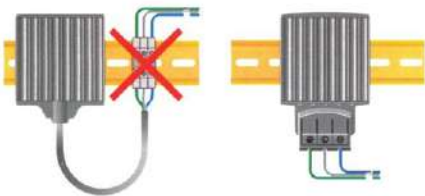
Technical Data 技术参数	
发热元件-Heating element	PTC发热体，自我调节和温度控制 PTC resistor, self regulating and temperature limiting
发热体-Heater body	阳极处理挤压铝型材extruded aluminium profile, anodised
安装方式Mounting	35mm DIN轨道，EN 50022 clip for 35mm DIN rail，EN 6071 5
安装方向Fitting position	垂直方向Vertical
Operating/Storage temperature 工作/储存温度	-20 to +70°C (-4 to +158°F)
Protection type保护等级	IP54(earthed/接地)
Operating voltage工作电压	120~240V交流电(最低110V,最高265V)



订货代号 Art. No.	操作电压 Operating voltage	功率 Heating capacity	电流最大值 Inrush current max.	长度(L) Length(L)	重量 Weight(approx.)	连接方式Connection
04700.0-00	120~240V AC/DC	10W	1.0A	50mm	0.10kg	3 x 0.5mm ² x 300mm sheathed cable(silicone)护套电缆
04701.0-00	120~240V AC/DC	20W	2.5A	60mm	0.20kg	3 x 0.5mm ² x 300mm sheathed cable(silicone)护套电缆
04702.0-00	120~240V AC/DC	30W	3.0A	70mm	0.20kg	3 x 0.5mm ² x 300mm sheathed cable(silicone)护套电缆
04700.9-00	110~120V AC/DC	10W	1.0A	50mm	0.10kg	3 x AWG 20 x 300mm sheathed cable护套电缆
04701.9-00	110~120V AC/DC	20W	1.5A	70mm	0.20kg	3 x AWG 20 x 300mm sheathed cable护套电缆
04702.9-00	110~120V AC/DC	30W	1.5A	100mm	0.20kg	3 x AWG 20 x 300mm sheathed cable护套电缆

1) at 20°C(68°F) ambient temperature

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



- Pressure clamp connectors 钳压连接
- Dynamic heating up 高效加热
- Wide voltage range 电压范围宽
- Temperature limiting 温度限定
- Energy saving 节能
- Clip fixing 导轨卡装
- Quick installation 快速安装

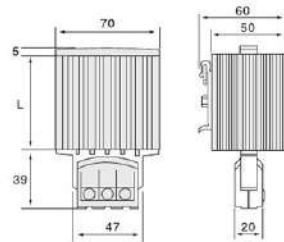
These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The pressure clamp connectors save time and simplify installation.

加热器用于机箱内,防止产生水珠或温度低于最小需求值,避免生锈腐蚀。铝制外壳采用筒式设计,能够均匀的分布热量。钳式卡槽接线方式,简化安装,节约时间。

Technical Data 技术参数	
Operating voltage 工作电压	120~240VAC/DC (min.110V, max.265V)
Heating element 加热元件	PTC resistor, self regulating and temperature limiting PTC电阻, 自动调节, 限制温度
Heater body 散热体	Extruded aluminium profile, anodised 阳极氧化铝型材
Connection 连接方式	3 pressure clamps for stranded wire 0.5~1.5mm (with wire end ferrule) and rigid wire 0.5~2.5mm 3个钳式卡槽, 适用于标准电线1.5~1.5mm (带电线末端套管)和硬线0.5~2.5mm
Connection casing 连接外壳	Plastic according to UL94V-0, black 适用于UL94V-0黑色塑料
Mounting 安装方式	Clip for 35mm DIN rail, EN 50022 35mm DIN导轨卡装(EN 50022)
Fitting position 安装方向	Vertical 垂直
Operating/Storage temperature 工作/储存温度	-45 to +70°C (-49 to +158°F)
Protection type/Protection class 防护类型/防护等级	IP20/(earthed/接地)

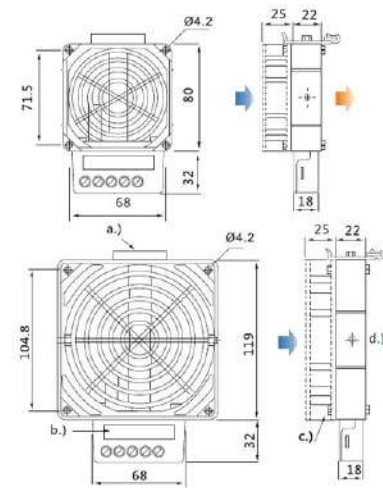
* Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%

* 工作电压低于140AC/DC, 加热性能降低10%左右。



订货代号Art.No.	功率Heating capacity	最大电流Inrush current max.	长度Length(L)	重量Weight(approx.)
14000.0-00	15W	1.5A	65mm	0.30kg
14001.0-00	30W	3.0A	65mm	0.30kg
14003.0-00	45W	3.5A	65mm	0.30kg
14005.0-00	60W	2.5A	140mm	0.40kg
14006.0-00	75W	4.0A	140mm	0.50kg
14007.0-00	100W	4.5A	140mm	0.50kg
14008.0-00	150W	9.0A	220mm	0.70kg

* at 20°C (68°F) ambient temperature



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

- Compact 紧凑型
- Flat design 扁平设计
- High air through-flow 空气流动性好
- Temperature safety cut-out 温度安全保护开关
- Clip fixing 导轨安装

The compact high-performance fan heater prevents formation of condensation in control or switch systems and provides an evenly distributed interior air temperature in enclosures. This fan heater is available without fan (HV 031) as well as with fan (HVL 031).

紧凑型高性能风机加热器可预防凝露的形成,该产品有带风机式加热器,型号为HVL031,也有不带风机式的,型号为HV031。

Technical Data 技术参数	
HV 031	Heater without fan (fan mounting kit included) 不带风机的加热器(含风扇安装套件)
HVL 031	Heater with fan 带风机的加热器
Heating element 加热元件	high performance Cartridge 高性能发热管
Temperature safety cut-out 安全温度切断	To protect against overheating in case of fan failure 防止风扇故障导致加热器过热
Heater body 散热体	Die-cast aluminium glass bead blasted 铝合金铸件
Connection 接线	3-pole screw connector 2.5mm ² clamping torque 0.8Nm max 3级螺栓连接器2.5mm ² , 最大扭矩0.8Nm
Connection casing 连接外壳	Plastic according to UL94 V-0, black UL94V-0黑色塑料
Mounting 安装方式	Clip for 35mm DIN rail, EN 50022 导轨卡装35mm, EN50022
Fitting position 安装方向	Horizontal 水平
Operating/Storage temperature 工作/储存温度	-45 to +70°C (-49 to +158°F)
Protection type/protection class 防护类型/防护等级	IP20/(earthed/接地)&IP54
Approvals	E187294(VDE: 230VAC only) 仅限HVL 031
HVL 031 only 轴承式轴流风扇	AxisL fan, ball bearing airflow (see table)
Airflow see table 使用寿命	50 000 at 25°C
Connection (axial fan) 轴流风扇	2-pole screw connector 2.5mm ² (L2/N2) 两极螺栓连接2.5mm ² (L2/N2)



Import! Heater may only be operated together with fan. Danger of overheating!
注意! 加热器只能与风扇一起工作, 过热危险!

订货代号Art.No. HV 031 230VAC, 50/60Hz	订货代号Art.No. HV 031 120VAC, 50/60Hz	功率 Heating capacity	尺寸 Dimensions	重量 Weight (approx.)
03100.0-00	03100.9-00	100W	80 x 112 x 22mm	0.40kg
03101.0-00	03101.9-00	150W	80 x 112 x 22mm	0.40kg
03110.0-00	03110.9-00	200W	119 x 151 x 22mm	0.50kg
03111.0-00	03111.9-00	300W	119 x 151 x 22mm	0.50kg
03112.0-00	03112.9-00	400W	119 x 151 x 22mm	0.50kg

订货代号Art.No. HV 031 230VAC, 50/60Hz	订货代号Art.No. HV 031 120VAC, 50/60Hz	功率 Heating capacity	最小风流量 Airflow min., free flow	尺寸 Dimensions	重量 Weight (approx.)
03102.0-00	03102.9-00	100W	35m ³ /h	80 x 112 x 47mm	0.60kg
03103.0-00	03103.9-00	150W	35m ³ /h	80 x 112 x 47mm	0.60kg
03113.0-00	03113.9-00	200W	108m ³ /h	119 x 151 x 47mm	0.90kg
03114.0-00	03114.9-00	300W	108m ³ /h	119 x 151 x 47mm	0.90kg
03115.0-00	03115.9-00	400W	108m ³ /h	119 x 151 x 47mm	0.90kg

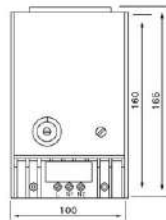


- Compact heater紧凑型加热器
- Heating capacity adjusts to ambient temperature加热功率可调
- Adjustable temperature range温度范围可调
- Clip fixing导轨安装
- Optical indicator信号指示
- Temperature safety cut-out温度安全保护

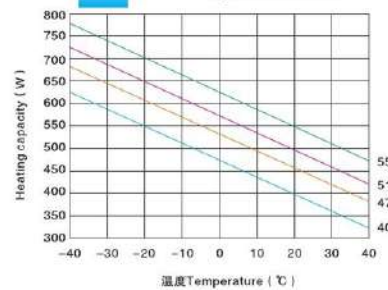
Semiconductor fan heaters prevent the formation of condensation and ensure an even temperature in switch and control equipment. The built-in regulator is used to set the desired temperature.

半导体式风机加热器主要用于配电柜体内，防止产生凝露，一体设计的调节器用于调整温度的变化。

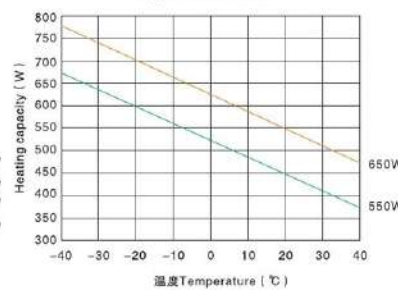
Technical Data 技术参数	
发热体Heater body	PTC resistor, self regulating and temperature limiting
温度保护 Temperature safety cut-out	过热保护 to protect against overheating in case of fan failure
滚珠风机Axial fan, ball bearing	风量见如下图表airflow see table service life 50,000h at 25°C (77°F)
接线方式Connection	两芯螺丝连接螺钉粗2.5mm ¹ 最大扭力0.8Nm 2-pole clamp max. 2.5mm ¹ clamping screw torque 0.8Nm max.
外壳材料Casing	流灰色塑料, UL94V-0标准, V-0防火等级 plastic according to UL94 V-0, light grey
信号指示Optical indicator	恒温控制灯 thermostat control lamp
安装方式Mounting	35mm DIN导轨安装, clip for 35mm DIN rail, EN 60715
安装方向Fitting position	垂直vertical
外观尺寸Dimensions	100 x 128 x 165mm
操作/储存环境 Operating/storage temperature	-45 to +90°C (-49 to +194°F)
防护等级 Protection type/Protection class	IP20/II(double insulated)



加热功率
Heating capacity/Ambient temperature
diagram CR 027 (50Hz)



加热功率
Heating capacity/Ambient temperature
diagram CR 027 (60Hz)



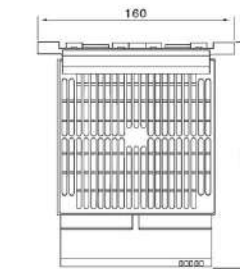
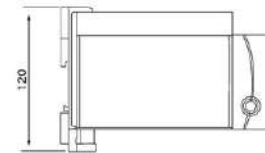
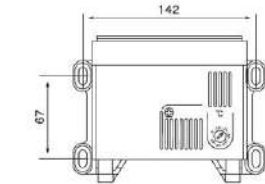
订货代号 Art.No.	工作电压 Operating voltage	功率(50Hz) Heating capacity	功率(60Hz) Heating capacity	最大电流 Inrush current max.	风量 Airflow, free flow	温度范围 Setting range Temp. regulator	重量 Weight(approx)
02700.0-00	220-240VAC, 50/60Hz	475W	550W	11.0A	35M ³ /h	0 to +60°C	0.90kg
02701.0-00	220-240VAC, 50/60Hz	550W	650W	13.0A	45M ³ /h	0 to +60°C	1.10kg
02700.9-00	100-120VAC, 50/60Hz	400W	550W	14.0A	35M ³ /h	+32 to +140°F	0.90kg
02701.9-00	100-120VAC, 50/60Hz	510W	650W	15.0A	45M ³ /h	+32 to +140°F	1.10kg

* at 20°C (68°F) ambient temperature

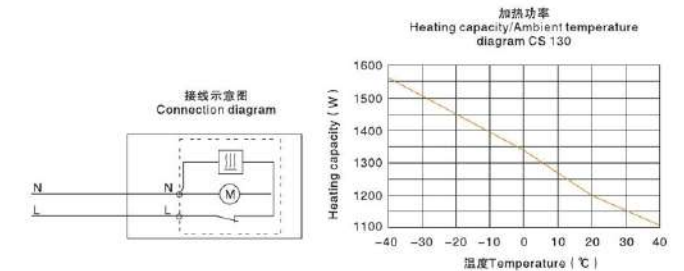


- Compact design紧凑型设计
- High heating performance高效率散热
- Double insulated双绝缘
- Integrated thermostat(optional)智能温控器
- Optional clip or screw fixing导轨或螺丝固定

The compact high performance fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic enclosure provides double insulation and acts as protection against contact. The fan heater is available with optional integrated thermostat for temperature control. The CS 130 was designed as a stationary unit for wall fixing. For fixing on the bottom of the enclosure the fan heater CS 030 is recommended. This compact high performance fan heater prevents condensation, provides a uniform air temperature environment inside the enclosure. The plastic enclosure has double insulation function, acts as contact protection. According to requirements, it can be connected to a thermostat to control the temperature. CS 130 has wall mounting function.



Technical Data 技术参数	
加热元件Heater element	热敏电阻(PTC) PTC resistor, self regulating and temperature limiting
温度保护 Temperature safety cut-out	风扇故障时过热保护自动复位 to protect against overheating in case of fan failure
滚珠风机Axial fan, ball bearing	风量见如下图表airflow see table service life 50,000h at 25°C (77°F)
接线方式Connection	两芯最大2.5mm ¹ 带孔螺丝 2-pole clamp max. 2.5mm ¹ clamping screw torque 0.8Nm max.
外壳材料Casing	黑色塑料, UL94V-0标准, V-0防火等级 plastic according to UL94 V-0, light grey
安装方式Mounting	35mm DIN导轨安装, clip for 35mm DIN rail, EN 60715
安装方向Fitting position	横向horizontal
外观尺寸Dimensions	182 x 160 x 120mm
重量Weight	大约1.25kg approx. 1.25kg
操作/储存环境 Operating/storage temperature	-45 to +90°C (-49 to +194°F)
防护等级 Protection type/Protection class	IP20/II(double insulated)/双绝缘



订货代号 Art.No.	型号Model	工作电压 Operating voltage	功率 Heating capacity	最大电流 Inrush current max.	设定范围 Setting range
13060.0-00	Fan Heater with thermostat	230VAC, 50/60Hz	1,200W	13A	0 to +60°C
13060.0-01	Fan Heater without thermostat	230VAC, 50/60Hz	1,200W	13A	-
13060.9-00	Fan Heater with thermostat	120VAC, 50/60Hz	1,200W	16A	+32 to +140°F
13060.9-01	Fan Heater without thermostat	120VAC, 50/60Hz	1,200W	16A	-

* at 20°C (68°F) ambient temperature

风机加热器250W-400W
Fan Heater HGL 046 250W-400W



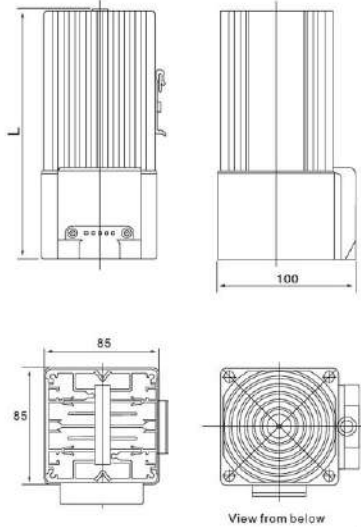
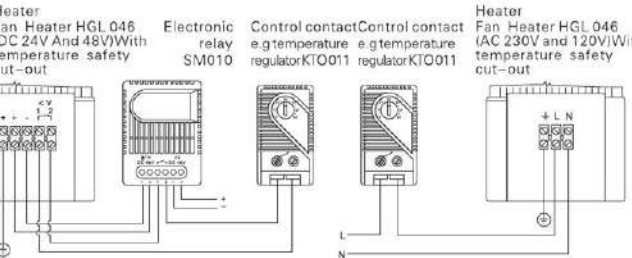
- Compact design紧凑的设计
- Clip fixing导轨式安装
- Long service life使用寿命长
- Maintenance free免维护
- Temperature safety cut-out安全温度断流功能

Compact fan heater prevents formation of condensation. The integrated high performance axial fan provides forced air circulation and so guarantees an even temperature in enclosures. With internal terminal connector, the heater is easy to install. The compact fan heater prevents the formation of condensation. The integrated high performance axial fan provides forced air circulation and so guarantees an even temperature in enclosures. With internal terminal connector, the heater is easy to install.

Technical Data 技术参数	
Heating element加热原理	resistance heater电阻性加热器
Temperature safety cut-out温度安全切断	to protect against overheating in case of fan failure 风扇故障时, 避免加热器过热
Heater body散热器	anodised extruded aluminium profile阳极氧化挤压铝合金
Surface temperature表面温度	max. 75°C (400W) / max. 75°C (400W)
Axial fan, ball bearing轴承轴流风扇	Airflow, free flow空气自由流动 AC: 45m³/h (50Hz) or 54m³/h (60Hz) 风量: AC: 45m³/h (50Hz) or 54m³/h (60Hz), DC: 54m³/h DC: 54m³/h service life 50 000h at 25°C (77°F) 使用寿命 50 000 小时 at 25°C (77°F)
Connection连接	internal connection terminal 1.5mm² with clamping torque 0.8Nm max. 内部压接连接, 线径 1.5mm², 夹紧扭矩 0.8Nm
Connection casing外壳	Plastic according to UL94 V-0, black UL94V-0黑色塑料
Mounting安装	Clip for 35mm DIN rail, EN 50715 35mm DIN 导轨安装
Fitting position安装方向	Vertical任意
Operating/Storage temperature适用温度	-45 to +70°C (-49 to +158°F)
Protection type/Protection class保护等级	IP20, (heated/加热)

Note: In the case of 24VDC and 48VDC the fan heater has to be switched via a relay. For this purpose we recommend our electronic relay SM 010 (Art.No.01000.0-00 and 01001.0-00).

注: 若使用24VDC和48VDC风扇加热器, 需使用一个转换继电器, 我们建议使用我们的电子继电器SM 010(型号01000.0.00和01001.0-00).



订货代号Art.No.	操作电压Operating voltage	功率Heating capacity	长度Length(L)	重量Weight(approx.)
04640.0-00	230VAC, 50/60Hz	250W	182mm	1.10kg
04641.0-00	230VAC, 50/60Hz	400W	222mm	1.40kg
04640.9-00	120VAC, 50/60Hz	250W	182mm	1.10kg
04641.9-00	120VAC, 50/60Hz	400W	222mm	1.40kg
04640.1-00	24VDC	250W	182mm	1.10kg
04640.2-00	48VDC	250W	182mm	1.10kg
04641.2-00	48VDC	400W	222mm	1.40kg

触摸安全型加热器CS 060系列50W-150W
Touch-safe Heater CS 060 Series 50W-150W



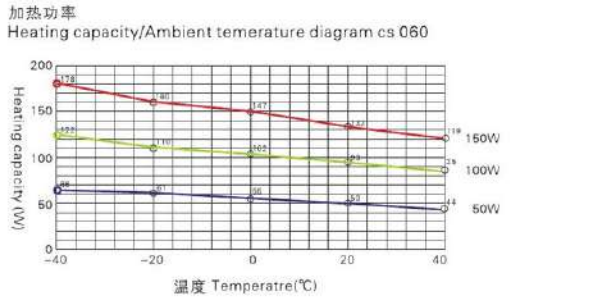
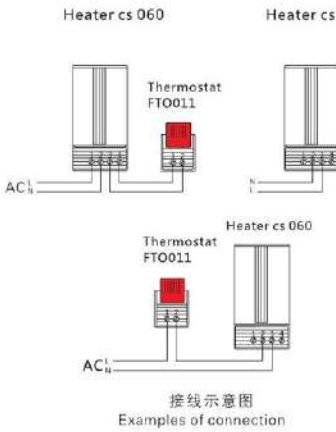
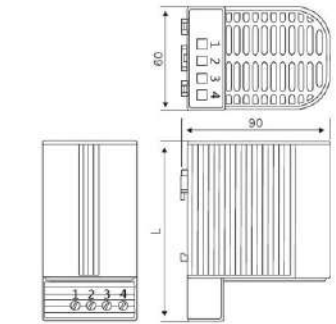
- Low surface temperature表面温度低
- Quick mounting due to clip fixing导轨式安装
- Doble insulated(plastic)双绝缘(塑料)
- Wide ovltage range宽电压范围
- Small size小体积

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 CS 060. This heater is also available in a version with plug-in thermostat requiring no additional wiring (CSF 060). Both versions are designed for permanent operation.

触摸安全型加热器主要用于有关电气和电子的配件的开关箱中, 其设计采用自然对流方案, 从产品加热体到外壳表面的设计采用温度逐渐降低的设计理念。我们全系列的温控器和湿度控制器均可直接连接到加热器CS 060上使用。其次该加热器也可与外挂恒温器连接, 不用单独接线。

Technical Data 技术参数	
Operating voltage操作电压	120-240V AC/DC*(min. 110V, max. 265V)
Heating capacity加热功率	见下表see table
Heater element加热原件	PTC陶瓷元件PTC resistor-temperature limiting
Surface temperature表面温度	除了上部防护的网路均<80°C(176°F) <80°C(176°F), except upper protective grille
Connection接线方式	螺丝4-pole terminal 2.5mm² torque 0.8Nm max.
Casing外壳材料	黑色塑料, UL94V-0标准, V-0防火等级Plastic according to UL94-V-0, black
Mounting安装方式	35mm DIN导轨安装clip for 35mm DIN rail, EN 50022
Fitting position安装方向	垂直Vertical
Operating/storage temperature操作/储存环境温度	-45 to +70°C (-49 to +158°F)
Protection type/Protection class防护等级	IP20 / II(double insulated)
Note注意	其他电压可定做other voltages on request

* Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%
* 工作电压低于140VAC/DC时, 加热性能降低约10%



订货代号Art.No.	功率Heating capacity	最大电流Inrush current max.	空气出口温度Air outlet temperature¹	尺寸Dimensions	重量Weight(approx.)
06000.0-00	50W	2.5A	+86°C (186.8°F)	110 × 60 × 90mm	0.30kg
06010.0-00	100W	4.5A	+120°C (248°F)	150 × 60 × 90mm	0.30kg
06020.0-00	150W	8A	+145°C (293°F)	150 × 60 × 90mm	0.30kg

1) ambient temperature-see Heating capacity/Ambient temperature diagram; 2) measured 50mm above protective grille;

触摸安全型加热器CSF 060系列50W-150W Touch-safe Heater CSF 060 Series 50W-150W



- Low surface temperature表面温度低
- Quick mounting due to clip fixing导轨式安装
- Doble insulated(plastic)双绝缘(塑料)
- Wide voltage range宽电压范围
- Small size小体积
- Integrated thermostat智能温控器

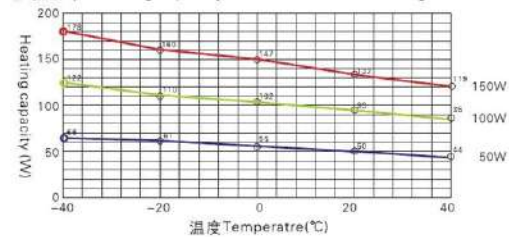
Touch-safe heater for the use in enclosures with electrical-electronical components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater design. This model with plug-in thermostat does not require additional wiring. The heaters are designed for permanent operation. This heater is also available in a version without thermostat (CS 060).

触摸安全型加热器主要用于有关电气和电子配件的开关箱中，其设计采用自然对流方案，从产品加热体到外壳表面的设计采用温度逐渐降低的设计理念，该加热器也可与外挂恒温器连接，不用单独接线，也可以在不加温控器的情况下使用。

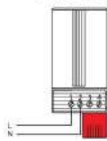
Technical Data 技术参数	
Operating voltage操作电压	120~240V AC/DC*(min. 110V, max. 265V)
Heating capacity加热功率	见下表see table
Heater element加热原件	PTC 限温元件 PTC resistor-temperature limiting
Surface temperature表面温度	除了上部防护的网路均<80°C(176°F) <80°C(176°F), except upper protective grille
Connection接线方式	螺丝4-pole terminal 2.5mm ² torque 0.8Nm max.
Casing外壳材料	黑色塑料, UL94V-0标准. V-0防火等级Plastic according to UL94-V-0, black
Mounting安装方式	35mm DIN导轨安装clip for 35mm DIN rail, EN 50022
Fitting position安装方向	垂直Vertical
Operating/storage temperature操作/储存环境	-20 to +70°C (-4 to +158°F) / -45 to +70°C (-49 to +158°F)
Protection type/Protection class防护等级	IP20 / II(double insulated)
Note注意	其他电压可定做other voltages on request

- * Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%
- * 工作电压低于140VAC/DC时，加热性能降低约10%

加热功率 Heating capacity/Ambient temperature diagram cs 060



Heater CS 060



接线示意图

Examples of connection

订货代号 Art.No.	功率 Heating capacity	最大电流 Inrush current max.	空气出口温度 ¹ Air outlet temperature ¹	关闭温度 Switch-off temperature ²	关闭温度 Switch-off temperature ²	尺寸 Dimensions	重量 Weight(approx.)
06001.0-00	50W	2.5A	+86°C (186.8°F)	+15°C (59°F)	+15°C (41°F)	110 × 60 × 90mm	0.30kg
06002.0-00	50W	2.5A	+86°C (186.8°F)	+25°C (77°F)	+25°C (59°F)	110 × 60 × 90mm	0.30kg
06011.0-00	100W	4.5A	+120°C (248°F)	+15°C (59°F)	+15°C (41°F)	110 × 60 × 90mm	0.30kg
06012.0-00	100W	4.5A	+120°C (248°F)	+25°C (77°F)	+25°C (59°F)	110 × 60 × 90mm	0.30kg
06021.0-00	150W	8A	+145°C (293°F)	+15°C (59°F)	+15°C (41°F)	150 × 60 × 90mm	0.50kg
06022.0-00	150W	8A	+145°C (293°F)	+25°C (77°F)	+25°C (59°F)	150 × 60 × 90mm	0.50kg

¹ Ambient temperature-see Heating capacity/Ambient temperature diagram; ² measured 50mm above protective grille.

小型半导体风机加热器CSL028 CSL028 Small Compact Semiconductor Fan Heater 150W,250W,400W



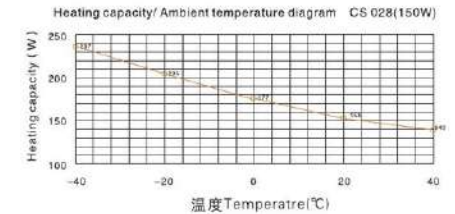
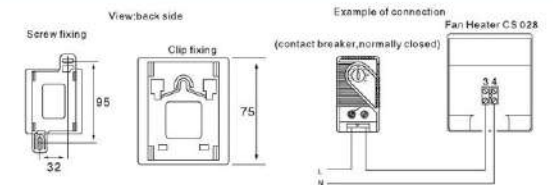
- Small, compact design紧凑型设计
- Quiet in operation无噪声
- Dynamic heating up高效加热
- Clip or screw fixing导轨或螺丝安装

Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosure with electric/electronic components. The heater is connected using the internal terminal connectors. The CS 028s small size make it ideal for use in enclosures where space is at a premium.

风扇加热器使用于配电柜中，该产品可用螺丝安装或DIN导轨安装，该加热器可保护开关元件和控制柜内的温度，防止凝露。



Technical Data 技术参数	
发热元件Heating element	PTC 发热元件 PTC heating element
最大峰值电流Inrush current max.	2A at 230VAC, 5A at 120VAC
表面温度Surface temperature	最高65°C (149°F) Max. 65°C (149°F)
滚珠风机Axial fan, ball bearing	空气流动13.8 m³/h, (在40°C时使用寿命40,000h) air flow 13.8 m³/h, free flow/service life 40,000h at 40°C
接线方式Connection	螺丝 2 pole clamp max. 2.5mm ² clamping screw torque 0.8Nm max.
外壳材料Casing	黑色塑料, UL94V-0标准. V-0防火等级Plastic according to UL94 V-0, black
安装方式Mounting	35mm DIN导轨安装, clip for 35mm DIN rail, EN 60715
安装方向Fitting position	垂直vertical
重量Weight	大约0.30千克approx. 0.30kg
操作/储存环境 Operating/storage temperature	-45 to +70°C (-49 to +158°F)
防护等级 Protection type/Protection class	IP20/II(double insulated)
注意Note	其他电压可定做other voltages on request



订货代号Art.No. 导轨安装Clip fixing	订货代号Art.No. 导轨安装Screw fixing	操作电压 Operating voltage	功率 Heating capacity	尺寸 Dimensions	重量 Weight
02800.0-00	02800.0-01	230VAC, 50/60-Hz	150W	65 × 75 × 90 mm	0.5kg
02811.0-00	02811.0-01	230VAC, 50/60-Hz	250W	90 × 85 × 110 mm	0.5kg
02810.0-00	02810.0-01	230VAC, 50/60-Hz	400W	90 × 85 × 110 mm	0.5kg
02800.9-00	02800.9-01	120VAC, 50/60-Hz	150W	65 × 75 × 90 mm	0.5kg
02811.9-00	02811.9-01	120VAC, 50/60-Hz	250W	90 × 85 × 110 mm	0.5kg
02810.9-00	02810.9-01	120VAC, 50/60-Hz	400W	90 × 85 × 110 mm	0.5kg

* at 20°C(68°F) ambient temperature