P&N Technology

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鹏南科技（厦门）有限公司

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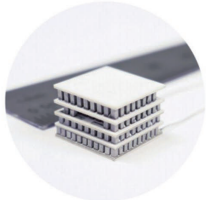
P&N Technology

鹏南科技，冷暖由芯

P&N TECH, YOUR COMFORT WAFER



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P&N Technology
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Professional Thermoelectric Cooler
Designer & Manufacturer

专注于热电产品研发与制造

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About Us 关于我们

鹏南科技（厦门）有限公司由具有热电行业近二十年从业经验的团队于 2012 年创立，掌握世界先进热电技术，专注于热电产品的研发、设计和制造，产品品质和可靠性达到世界先进水平。鹏南科技致力于成长为热电行业中高端领域的世界著名品牌，并依托核心技术占据市场优势地位。经过多年努力，公司在热电行业获得较高知名度，以产品客户定制化、产品稳定性与可靠性作为核心竞争优势，在热电行业中高端领域积累了丰富的优质客户资源。

P&N was founded by a team with more than 20 years of thermoelectric experience in 2012. It has mastered the world's advanced thermoelectric technology and focuses on the research and development, design and manufacture of thermoelectric products. The product quality and reliability have reached the world's advanced level. P&N is committed to growing into a world-renowned brand in the high-end field and occupy a dominant position in the market. After years of hard work, the company has gained a high reputation in the thermoelectric industry. With product customization, product stability and reliability as its core competitive advantages, it has accumulated a wealth of high-quality customer resources in the high-end field of the thermoelectric industry.

我们的理念 Our Concept

以诚信为基石　以卓越为目标　以创新为导向　以责任为动力
Foundation based on integrity; Target set on excellence;
Oriented by our innovation; Motivated by our responsibility.

我们的愿景 Our Vision

鹏南科技代表民族品牌屹立于世界高端市场。
P&N who acts as national brand stands erect among the world.

鹏南里程碑 P&N Milestones

2012
鹏南科技 (厦门) 有限公司成立
P&N was established

P&N Technology

2013
取得 ISO9001 认证
Obtained ISO9001 certification.

2014
取得 TS-16949 认证
ObtainedTS6949 certification.

2018
鹏南科技欧洲分公司成立
P&N Europe was established.

P&N EUROPE

2018
取得厦门市高新技术企业认定
Obtained the identification of high-tech enterprises in Xiamen

2020
取得国家高新技术企业认定
Obtained the national high-tech enterprises certification.

2022
荣获“厦门专精特新”企业荣誉称号
Won the honorary title of Xiamen Specialized, Special and New” enterprise.

2023
成立子公司布莫让科技（厦门）有限公司
Daughter company i-Tec was found.

布莫让科技 i-TEC

为什么选择鹏南?

Why P&N?

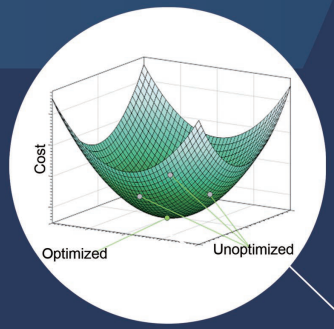
1 Customized Solutions 定制方案

P&N has a strong background in thermoelectric R&D technology and more than 20 years of thermal design experience. We have a professional thermal design team that provides customers with R&D, design calculations, simulation analysis and structural design from thermoelectric module to thermoelectric assembly. We can provide highly customized thermoelectric solutions for customers in various professional fields. like:

- •Achieve high cooling capacity in a limited space, high COP, high-precision temperature control, noise control, etc.
- •Customized fan with IP protection, wire with connectors etc.
- •TEM customized connection.
- •Specific tolerance and specified types of connectors.

鹏南拥有雄厚的热电研发技术背景和 20 多年的热设计经验， 专业的散热设计团队， 为客户提供从热电制冷芯片到热电制冷模组的研发、 设计计算、 仿真分析和结构设计。 可为各专业领域客户提供高度定制化的热电解决方案。 如：

- •在有限空间内实现高制冷量、 高 COP、 高精度温度控制、 噪音控制等
- •定制具有 IP 防护的风扇、 带端子的导线等；
- •定制多片致冷片的串并联等；
- •特定的公差及指定的各类型号的端子等。



2 Cost-effective 最优性价比

Due to our professional and rich thermoelectric experiences, we are able to provide cost-effective product to our customer.

- •Vertical product integration including thermoelectric materials, modules, and assemblies.
- •Cost-effective oriented design.
- •High efficient production procedure.
- •Long term and high reliable supplier relationship。

专业和丰富的热电经验使我们能够为客户提供最高性价比的产品。

- •鹏南拥有含热电材料， 热电模块和组件的垂直化生产链。
- •以性价比为导向的设计。
- •高效率的生产流程。
- •长期稳定且可靠的供应商关系。

Quality Certification

质量管理体系证书

ISO9001:2008
All TEMs are compliance with RoHS and REACH
所有致冷片符合 RoHs & REACH 标准

3 Stability and Reliability 稳定性及可靠性

Because of solid state construction, thermoelectric modules are considered to be highly reliable components. TEC will be used as long, trouble-free service in the real application. On one hand, PN engineer takes thermoelectric life time into consideration and designs TEC for optimum reliability. On the other hand, We instituted serveral test projects to ensure the stability of our products. The testing are according to MIL-STD-883 and Telcodia-GR-468-Core.

由于采用固态结构，热电模块被认为是高度可靠的器件。TEC 可在实际应用中提供长期、无故障的服务。一方面，鹏南工程师在设计致冷片时充分考虑了热电产品的寿命以取得最佳可靠性。另一方面，我们制定了多个可靠性测试项目以保证我们产品的可靠性。测试依据 MIL-STD-883 和 Telcodia-GR-468-Core。

4 Promptly feedback 快速反馈

Listening to customers and taking prompt action to solve customers' challenges is the first essential step to Customer Success. That' s why PN consists of initiatives designed to capture customer insights, close the loop on customer feedback, and prioritize improvements to produce happy and successful customers.

倾听客户的声音并立即采取行动解决客户的问题是客户成功的第一个重要步骤。鹏南团队积极主动了解客户需求、第一时间闭环解决客户反馈，并持续改进以提高客户满意度。

致冷片制造选项
Manufacture Options of TEM

粘胶工艺 TEC
Viscose Process TEC

特性：

TEC 冷面陶瓷基板和导铜之间，使用柔性胶层粘接。在 TEC 快速加热 / 制冷，或者 TEC 制冷 / 加热循环使用的工况下，柔性胶层能够吸收因热胀冷缩而带来的形变，有效减小 TEC 内部热应力，提高产品在冷热循环使用工况下的可靠性和寿命。

Characteristic:

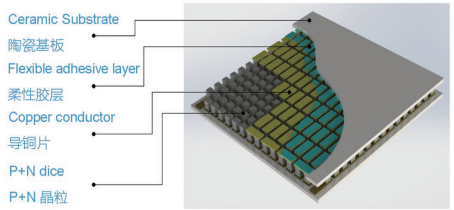
The TEC cold surface ceramic substrate and the copper conductor are bonded with a flexible adhesive layer. Under the conditions of TEC rapid heating/cooling, or TEC refrigeration/heating cycle, the flexible adhesive layer can absorb the deformation caused by thermal expansion and contraction, effectively reduce the internal thermal stress of TEC, and improve the TECs reliability and life under thermal cycling working conditions.

应用：

PCR 仪，或其他需要频繁制冷 / 制热功能切换的应用；
快速升温 / 快速降温的应用；
需要使用大尺寸 TEC 的应用。

Application:

PCR instrument, or other applications that require frequent switching of cooling/heating functions;
Rapid heating/rapid cooling applications;
Applications requiring large size TECs.



TEC 预上导热界面材料
TEC Pre-applied thermal interface material

特性：

使用印刷工艺，在 TEC 表面，印刷出特定形状和布局的导热界面材料。通常使用导热相变材料。

Characteristic:

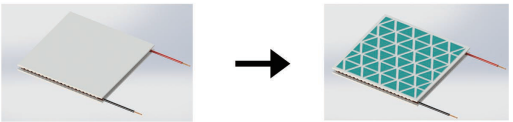
A thermal conductive interface material with a specific shape and layout is printed on the surface of the TEC using printing process. Typically thermally conductive phase change materials are used.

应用：

用户在使用时不方便自己涂刷导热界面材料的情况下；
用户对导热界面材料的均匀度有较高要求时。

Application:

When the user is inconvenient to paint the thermal interface material by himself.
When the user has high requirements on the uniformity of the thermal interface material.

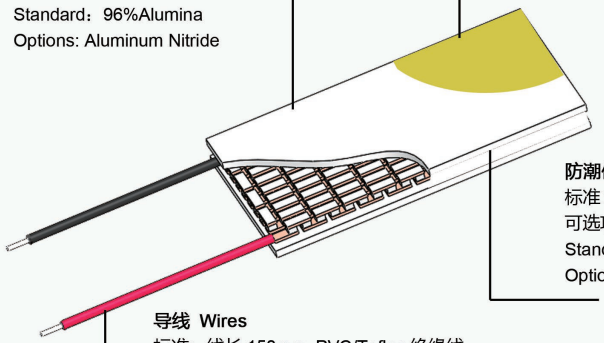


Standard Features & Options
标准参数及选项

基板金属化 Substrate surface metallized
可选项：铜，镍，金
Options: Cu, Ni, Au

预上锡 Pre-tinned
焊料熔点 Solder melting poing:
In/Sn 118℃
Bi/Sn 138℃
其它定制焊料 Specified solder

基板材料 Substrate material
标准：96% 氧化铝
可选项：氮化铝
Standard：96%Alumina
Options: Aluminum Nitride



防潮保护 Moisture protection
标准：RTV 硅胶密封
可选项：不封胶、环氧树脂密封
Standard：RTV Silicone seal
Options: No seal, Epoxy seal

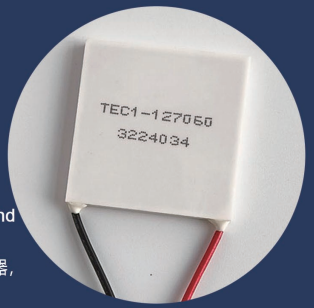
导线 Wires
标准：线长 150mm, PVC/Teflon 绝缘线
可选项：客户指定线长及导线型号
端子：客户指定品牌及型号
Standard: 150mm length, PVC / Teflon Insulation
Options: specified wire length type
Harness: specified brand & model No.

Standard Module

常规致冷片

It is suitable for the higher current and larger cooling requirements. Typical application includes experimental, scientific and biomedical instruments, laboratory equipment, industry and electrical equipment and consumables.

适用于大电流，高致冷量需求。典型应用包括实验设备，科学仪器，生化仪器，工业及电气设备，消费品等。

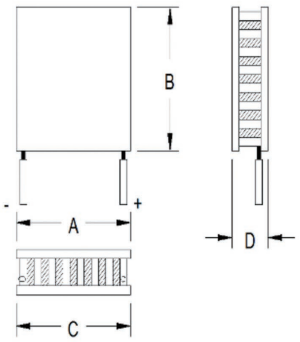


NO.	Model No.	I max (A)	Th=25°C			N	Dimensions (mm)		
			Q max (W)	V max (V)	ΔT max (°C)		A/C	B	D
1	TES1-031021	2.1	4.4	3.8	67	31	15	15	3.70
2	TES1-031025	2.5	5.3	3.8	67	31	15	15	4.00
3	TES1-031030	3.2	6.7	3.8	67	31	15	15	3.60
4	TES1-031040	4.0	8.2	3.8	67	31	15	15	3.20
5	TEC1-031040	3.9	8.2	3.8	67	31	20	20	4.70
6	TEC1-031060	6.0	12.5	3.8	67	31	20	20	3.60
7	TEC1-031080	8.5	16.8	3.8	67	31	20	20	3.30
8	TEC1-035040	4.0	9.6	4.2	67	35	15	30	3.90
9	TEC1-035080	8.5	20.0	4.2	67	35	15	30	3.30
10	TEC1-039030	4.5	11.7	4.7	67	39	7.4	40	4.50
11	TEC1-049020	2.1	7.0	5.9	67	49	20	20	3.90
12	TES1-049030	3.2	10.7	5.9	67	49	20	20	3.80
13	TES1-063025	2.5	10.6	7.6	67	63	15	30	4.00
14	TES1-063030	3.0	12.7	7.6	67	63	15	30	3.60
15	TES1-063040	3.9	16.6	7.6	67	63	15	30	3.20
16	TEC1-063060	6.0	25.4	7.6	67	63	20	40	3.70
17	TEC1-063080	8.5	36.4	7.6	67	63	20	40	3.10
18	TEC1-063080	8.5	36.4	7.6	67	63	40	20	3.95
19	TES1-071021	2.1	10.1	8.6	68	71	20	20	4.60
20	TES1-071025	2.5	12.0	8.6	68	71	23	23	4.00
21	TES1-071030	3.2	15.5	8.6	68	71	23	23	3.18
22	TEC1-071030	3.0	14.4	8.6	68	71	30	30	4.10
23	TES1-071040	4.0	19.1	8.6	68	71	23	23	3.20
24	TES1-071040	3.9	18.7	8.6	68	71	23	28	3.40
25	TEC1-071040	4.0	19.4	8.6	68	71	30	30	3.90
26	TEC1-071060	6.1	29.4	8.6	68	71	30	30	3.60
27	TEC1-071080	8.5	40.1	8.6	68	71	30	30	3.20
28	TEC1-079050	5.4	28.8	9.6	68	79	20	50	3.20
29	TES1-127021	2.1	18.1	15.4	68	127	25	25	3.40
30	TES1-127025	2.5	21.4	15.4	68	127	30	30	4.00
31	TES1-127030	3.0	25.7	15.4	68	127	25	25	3.00

NO.	Model No.	I max (A)	Th=25°C			N	Dimensions (mm)		
			Q max (W)	V max (V)	ΔT max (°C)		A/C	B	D
32	TES1-127030	3.2	27.6	15.4	68	127	30	30	3.60
33	TEC1-127030	3.1	26.3	15.4	68	127	40	40	4.20
34	TES1-127040	4.0	34.1	15.4	68	127	30	30	3.20
35	TEC1-127040	4.0	34.7	15.4	68	127	40	40	3.90
36	TEC1-127050	5.2	44.6	15.4	68	127	40	40	3.80
37	TES1-127060	7.0	60.0	15.4	68	127	30	30	3.10
38	TEC1-127060	6.0	51.4	15.4	68	127	40	40	3.60
39	TEC1-127080	8.5	73.2	15.4	68	127	40	40	3.30
40	TEC1-127090	9.4	80.1	15.4	68	127	62	62	5.60
41	TEC1-127110	11.8	100.1	15.4	68	127	40	40	3.70
42	TEC1-127140	14.2	121.8	15.4	68	127	62	62	4.60
43	TEC1-127150	15.2	130.0	15.4	68	127	40	40	2.90

致冷片参数是基于热面温度 25°C 条件下。
TEM parameters are base on hot side 25°C.

I max(A): 在最大温差情况下通过模块的电流。
DC current through the modules at ΔTmax.
Qmax (W): 在最大温差为零时，冷面的最大致冷量。
Cooling capacity at cold side of the module under ΔT=0 °C.
V max(V): 在最大温差时输入的电压。
Voltage applied to the module at ΔTmax.
ΔTmax(°C): 在冷面致冷量为零时，冷热面的最大温差。
Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side.
N: 致冷片所用 N、P 型粒子电偶对数。
P-N couples amount.



High Performance Module

高性能致冷片

The hot side ceramic is bigger than cold side, it has better heat dissipation, higher efficiency, higher reliability and longer life time.Typical application for experiental instruments, chillers, PCR cyclers and analyzers, etc.

热面陶瓷片比冷面陶瓷片大，具备更高的散热能力，同样面积的致冷效率更高，可靠性更高，使用寿命更长。典型应用包括实验设备，冷却器，PCR 分析仪等。

No.	Model No.	I max (A)	Th=25°C			N	Dimensions (mm)			
			Q max (W)	V max (V)	ΔT max (°C)		A	B	C	D
1	HP-071040	4.0	19.4	8.6	70	71	30	30	30	4.70
2	HP-127040	4.0	35.0	15.4	72	127	30	30	34	3.60
3	HP-127040	3.9	37.0	15.4	72	127	40	40	40	4.80
4	HP-127040	3.9	37.0	15.4	72	127	40	40	44	4.80
5	HP-127060	6.2	55.0	15.4	72	127	40	40	40	3.90
6	HP-127080	8.5	77.0	15.4	72	127	40	40	40	3.30
7	HP-127080	8.5	77.0	15.4	72	127	40	40	44	3.30
8	HP-127100	10.0	82.0	15.4	72	127	40	40	40	3.45
9	HP-127120	12.4	106.0	15.4	72	127	40	40	40	2.80
10	HP-161050	5.6	62.0	20.0	72	161	40	40	44	3.91
11	HP-161060	6.0	65.0	20.0	72	161	40	40	44	3.91
12	HP-161080	8.5	93.0	20.0	72	161	40	40	44	3.40
13	HP-161090	9.4	102.0	20.0	72	161	40	40	44	3.30
14	HP-161120	12.4	135.0	20.0	72	161	40	40	44	3.00
15	HP-199040	4.3	58.0	24.0	72	199	40	40	40	3.80
16	HP-199060	6.2	83.0	24.0	72	199	40	40	44	3.90
17	HP-199080	8.5	115.0	24.0	72	199	40	40	44	3.30
18	HP-199100	10.0	133.0	24.0	72	199	40	40	44	3.30
19	HP-199120	12.4	165.0	24.0	72	199	40	40	44	3.10
20	HP-241020	2.0	33.0	29.8	72	241	40	40	40	4.80
21	HP-241040	4.0	65.0	29.8	72	241	40	40	40	3.55
22	HP-241060	6.0	113.0	29.8	72	241	55	55	55	4.30
23	HP-241100	10.7	175.0	29.8	72	241	55	55	55	3.64
24	HP-241120	12.0	198.0	29.8	72	241	55	55	55	3.75

Power Generator Module

温差发电片

Using the theory of Seebeck Effect, it can generate power from the temperature difference.Typical application for detector instruments, various environment where hard to get or unsuitable for electrical power, and the excess or waste heat cycling fields.

利用塞贝克效应，通过周围环境的温度差来发电。应用于探测仪器、各种不易取得或不宜使用传统电力的环境以及各种余热、废热的再利用等领域。

No.	Model No.	Tc=30°C, Th=200°C						Dimensions (mm)			
		Voc (V)	V Load (V)	I Load (A)	R in (Ω)	R Load (Ω)	W Load (W)	A	B	C	D
1	TEG-127005	8.54	4.27	0.54	7.9	7.9	2.3	30	30	34	3.6
2	TEG-127006	8.54	4.27	0.67	6.4	6.4	2.8	30	30	34	3.2
3	TEG-127009	8.54	4.27	0.92	4.6	4.6	3.9	30	30	34	3.2
4	TEG-071008	4.78	2.39	0.89	2.7	2.7	2.1	30	30	34	4.1
5	TEG-127008	8.54	4.27	0.89	4.8	4.8	3.8	40	40	44	4.1
6	TEG-071014	4.78	2.39	1.42	1.7	1.7	3.4	30	30	34	3.8
7	TEG-127014	8.54	4.27	1.42	3.0	3.0	6.0	40	40	44	3.6
8	TEG-071020	4.78	2.39	2.00	1.2	1.2	4.8	30	30	34	3.3
9	TEG-127020	8.54	4.27	2.00	2.1	2.1	8.5	40	40	44	3.3

由于接触面的表面粗糙度、表面接触面积、接触压力等因素十分复杂，且多为非线性因素。因此，实际使用发电性能应该低于上面的列表。

Due to the contact resistance of the surface roughness, surface contact area, contact pressure and other factors are very complex, and mostly are nonlinear factors. Therefore, the actual use of the generating performance should be lower than the above list.

Voc(V): Open circuit voltage 开路电压

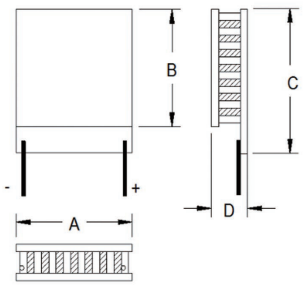
V Load(V): Output voltage, corresponded to matched load. 输出电压，对应匹配负载。

I Load(A): Output current, corresponded to matched load . 输出电流，对应匹配负载。

R in(Ω): Module internal resistance at 65℃&115℃ 模块在 65℃ 及 115℃时内部电阻。

R Load: Output resistance, corresponded to matched load. 输出电阻，对应 匹配负载。

W Load: Output power, corresponded matched load. 输出功率，对应匹配负载。



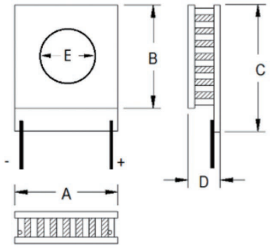
Center Hole Module

带孔致冷片

Center hole for transmission of light, wires, probes or other hardware through the TEM. It is suitable for industrial, electrical equipemnt, laboratory and optical-electronics.

中间带孔可以让光束、 导线、 探测器或其它凸起部件穿过致冷片。 可应用于工业、 电器设备以及实验室和光电子设备等领域。

No.	Model No.	I max (A)	Th=27°C			N	Dimensions (mm)				
			Q max (W)	V max (V)	ΔT max (°C)		A	B	C	D	E
1	TES1-095030	3.0	19.3	11.5	67	95	30	30	30	3.6	14.5
2	TES1-125030	3.0	25.3	15.2	67	125	30	30	30	3.6	3.6
3	TES1-095040	3.9	25.1	11.5	67	95	30	30	30	3.2	14.5
4	TES1-125040	3.9	32.9	15.2	67	125	30	30	30	3.2	3.6
5	TEC1-125040	3.9	32.9	15.2	68	125	40	40	40	4.7	4.7
6	TEC1-125060	6.0	50.7	15.2	68	125	40	40	40	3.8	4.7
7	TEC1-125080	8.5	67.7	15.2	68	125	40	40	40	3.3	4.7



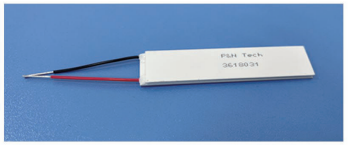
Thermal Cycling Module

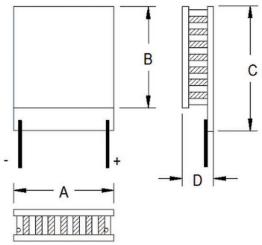
热循环致冷片 TCR 系列

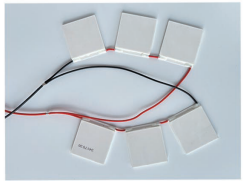
The TCR series is a high reliability thermoelectric cooler that achieve long life in thermal cycling applications. It is very suitable for molecular diagnostic applications (DNA amplification, PCR instruments), thermal test sockets, etc. that require a fast heating rate while maintaining precise temperature with minimal gradients.

TCR 系列是一种高可靠性热电致冷片，能够在热循环应用中实现长寿命运行，适用于需要快速升温，同时以最小梯度保持精确温度的分子诊断应用（DNA 扩增，PCR 仪器), 热测试插座等。

No.	Model No.	I max (A)	Th=50°C			N	Dimensions (mm)			
			Q max (W)	V max (V)	ΔT max (°C)		A	B	C	D
1	TCR-152080	8.0	90.0	22.8	78	152	16.8	74.5	77	3.30
2	TCR-139140	14.1	145.0	17.9	75	139	30	60	60	3.30
3	TCR-127080	8.5	79.0	16.3	75	127	40	40	40	3.30
4	TCR-127090	9.6	90.3	16.3	75	127	30	30	34	2.80
5	TCR-126040	4.0	38.0	16.8	84	126	10	40	40	2.30
6	TCR-097040	3.6	25.9	13.3	81	97	12.1	11.2	12.1	1.65
7	TCR-045036	3.6	12.0	5.8	75	45	12.1	11.2	13.7	2.90







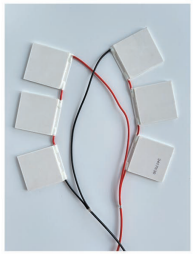
* We could help sort every 6pcs TEM's resistance difference within 5% into one group upon customer's request.
*TEM series and parallel assembly service is provided.

* 可根据客户需求筛选6个产品的电阻相差在5%以内组成一套。
*提供TEM串并联组装服务。

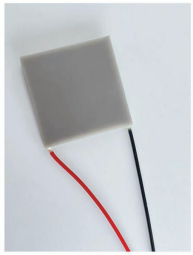
Customized Thermoelectric Module
热电致冷片定制

When our standard model can’t meet customer’s requirement, P&N can provide various size, shape, substrate material, surface treatment.sealing..etc. Please contact P&N for more details.
当我们的标准致冷片型号满足不了客户的需求时，鹏南可以根据客户的特殊需求定制不同的尺寸，形状，基板材料，表面处理，产品密封材料等，如有需要，请联系我们获得更多信息。

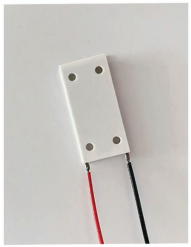
TEM Array
致冷片多片串并联



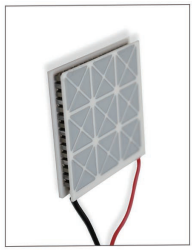
AlN substrate TEM
氮化铝基板致冷片



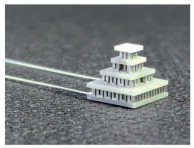
Multi holes Module
多孔致冷片



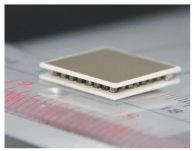
TEM with thermal grease
带导热硅脂致冷片



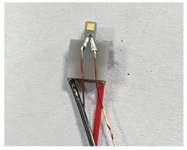
Multi-stage TEM
多级致冷片



Substrate surface metallized
基板金属化



TEM with NTC
带NTC致冷片

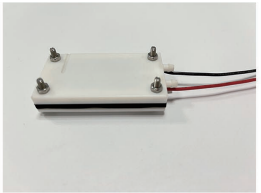


TEM with TO package
TEC带TO封装

Customized Thermoelectric Assembly
热电致冷组件定制

When our standard TEA model can’t meet customer’s requirement, P&N can provide customized design with various size & shape, IP-Protection，cooling power..etc to meet customer specifica requirement. Please contact P&N for more details.
当我们的标准致冷组件型号满足不了客户的需求时，鹏南可以根据客户的特殊需求定制不同的尺寸，形状，防护等级，致冷量 .. 等致冷模组符合客户项目的特殊要求，如有需要，请联系我们获得更多信息。

Customized TEA Cases
部分致冷组件定制案例



Thermoelectric Assembly
热电组件

Air to Air series 空气对空气系列

Cool or heat objects in containers, heat is absorbed and dissipated by heat exchangers equipped with fans. It is in application of cooling electrical devices, analytical instruments, incubator,commercial refrigeration and food or medicine transportation boxes.
冷却或加热容器中的对象，热量被装配风扇的热交换器吸收并消散。可用于冷却电气柜、恒温箱、分析仪器、商用制冷和食品或则药品稳定箱等。

Application 应用


Analytical
分析仪器


Medical
医疗设备


Laser
激光


Industrial
工业

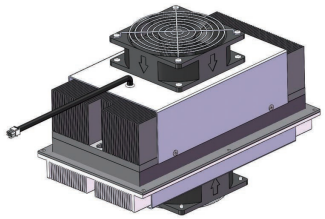
型号 Model No.	制冷量 Pc Max (W)	电流 Current (A)	电压 Voltage (V)	输入功率 Input Power (W)	工作温度 Working Temp(℃)	重量 Weight (Kg)	尺寸 Dimension L X W X H (mm)
AA-019-12-00	19	2.3	12	28	-10 ~ 60	0.32	80 X 62 X 105
AA-024-12-00	24	2.4	12	28.8		0.59	100 X 82 X 115
AA-034-12-00	34	3.5	12	42		0.91	120 X 102 X 125
AA-040-12-00	40	6.3	12	75.6		1.8	160 X 122 X 147
AA-040-24-00	40	3.2	24	76.8		1.8	160 X 122 X 147
AA-070-12-00	70	7.6	12	91.2		2.5	230 X 122 X 147
AA-070-24-00	70	3.8	24	91.2		2.5	230 X 122 X 147
AA-100-24-00	100	6.5	24	156		4.1	300 X 152 X 166
AA-100-48-00	100	3.3	48	158.4		4.1	300 X 152 X 166
AA-125-24-00	125	7.5	24	179		4.0	300 X 152 X 166
AA-150-24-00	150	9.1	24	218.4		5	300 X 181X 176
AA-150-48-00	150	4.9	48	235.2		5	300 X 181 X 176
AA-200-24-00	200	9.8	24	235.2		7.3	400 X 181 X 198
AA-200-48-00	200	7.3	48	350.4		7.3	400 X 181 X 198
AA-220-24-00	223	11	24	265		7	315 X 169.6 X 217

Air to Air series 空气对空气系列

AA-220-24

Main Features 特点

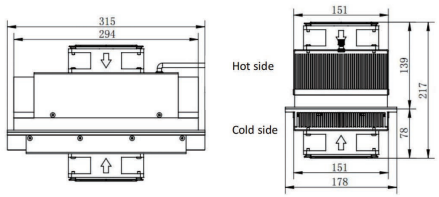
- Compact design 结构紧凑
- Precise temperature control 精准控温
- High reliability 高可靠性
- High efficiency 高效率
- Customizable 可定制化

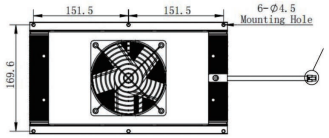


Technical Parameters 技术参数

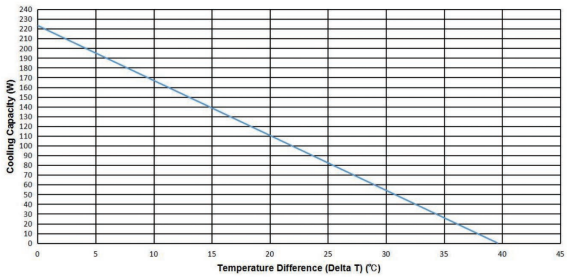
Model No 型号	AA-220-24
Max Cooling Power 最大制冷量 (W)	223
Running Current 额定工作电流 (A)	11
Nominal Voltage 额定工作电压 (V)	24
Max Input Voltage 最大输入电压 (V)	28
Input power 输入功率 (W)	265
Working temperature 工作温度 (℃)	-10 to 70
Net Weight 净重 (KG)	7
MTBF (Fan-hrs 小时)	50,000

Dimension 尺寸图

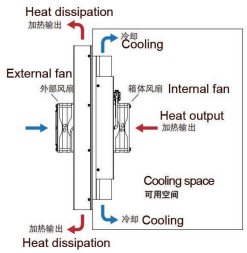




Performance Graph 性能曲线图



Installation Instruction 安装示意图



Thermoelectric Assembly
热电组件

Plate to Air series 平面对空气系列

Cool or heat object directly on the cold plate,or enclosures, liquid in a thermal conductive container. The heat is absorbed by the cold plate, pumped through the TE modules a
nd then dissipated to the air by an air heat sink. It is in application of cooling electrical devices,analytical instruments,lasers and commercial refrigeration.
冷却或加热冷板上的直接对象，或则容器，导热容器里的液体等。热量被冷板吸收，传递给致冷片，然后通过装配风扇的热交换器散热到空气中。可用于冷却电子设备、分析仪器、激光和商用制冷等。

Application 应用


Analytical
分析仪器


Medical
医疗设备

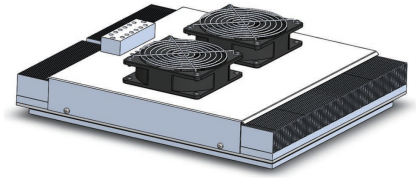

Laser
激光


Industrial
工业

型号 Model No.	制冷量 Pc Max (W)	电流 Current (A)	电压 Voltage (V)	输入功率 Input Power (W)	工作温度 Working Temp(℃)	重量 Weight (Kg)	尺寸 Dimension L X W X H (mm)
PA-024-12-00	24	2.4	12	28.8	-10 ~ 50	0.3	80 X 62 X 69
PA-045-12-00	45	6.5	12	78		1.2	160 X 122 X 83
PA-045-24-00	45	3.2	24	76.8		1.2	160 X 122 X 83
PA-075-12-00	72	7.6	12	91.2		1.7	230 X 122 X 83
PA-075-24-00	72	3.8	24	91.2		1.7	230 X 122 X 83
PA-115-24-00	115	6.5	24	156		2.9	300 X 152 X 100
PA-115-48-00	115	3.3	48	158.4		2.9	300 X 152 X 100
PA-160-24-00	160	9.5	24	228		3.5	300 X 152 X 113
PA-160-48-00	160	4.8	48	230.4		3.5	300 X 152 X 113

Plate to Air series 平面对空气系列

PA-290-24



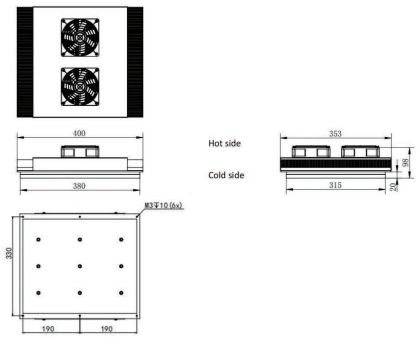
Main Features 特点

- Compact design 结构紧凑
- Precise temperature control 精准控温
- High cooling power 高制冷量
- High temperature difference 高温差
- Customizable 可定制化

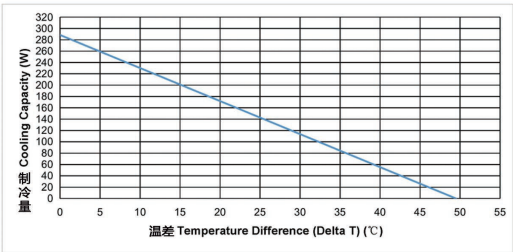
Technical Parameters 技术参数

Model No 型号	PA-290-24
Max Cooling Power 最大制冷量（W)	289
Running Current 额定工作电流（A)	16.2
Nominal Voltage 额定工作电压（V)	24
Max Input Voltage 最大输入电压（V)	27
Input power 输入功率（W)	389
Working temperature 工作温度（℃)	-10 to 60
Net Weight 净重（KG)	13
MTBF (Fan-hrs 小时)	50,000

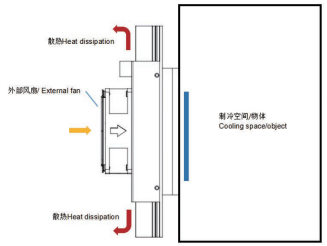
Dimension 尺寸图



Performance Graph 性能曲线图



Installation Instruction 安装示意图



Thermoelectric Assembly
热电组件

Air to Air Tunnel series AAT 系列

Cool or heat objects in containers, heat is absorbed and dissipated by heat exchangers equipped with fans. It is in application of cooling electrical devices, analytical instruments, incubator,commercial refrigeration and food or medicine transportation boxes.
冷却或加热容器中的对象，热量被装配风扇的热交换器吸收并消散。可用于冷却电气柜、恒温箱、分析仪器、商用制冷和食品或则药品运输箱等。

Application 应用

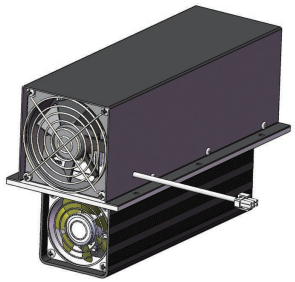

Analytical
分析仪器


Medical
医疗设备


Laser
激光


Industrial
工业

型号 Model No.	制冷量 Pc Max (W)	电流 Current (A)	电压 Voltage (V)	输入功率 Input Power (W)	工作温度 Working Temp(℃)	重量 Weight (Kg)	尺寸 Dimension L X W X H (mm)
AAT-030-12-00	30	3.5	12	42	-10 ~ 50	1.2	155 X 65 X 142
AAT-060-12-00	58	6.8	12	81.6		1.7	180 X 65 X 142
AAT-060-24-00	58	3.4	24	81.6		1.7	180 X 65 X 142
AAT-085-12-00	82	9.8	12	117.6		2.7	248 X 83 X 152
AAT-085-24-00	82	4.9	24	117.6		2.7	248 X 83 X 152

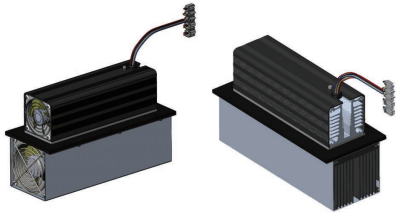


Air to Air Tunnel series AAT 系列

AAT-085-24

Main Features 特点

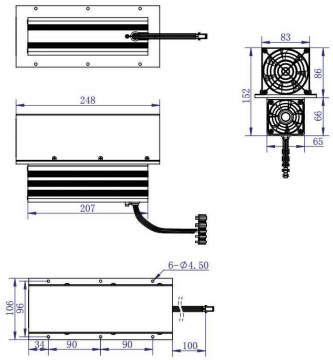
- Compact design 结构紧凑
- Long life time 寿命长
- High reliability 高可靠性
- High efficiency 高效率
- Customizable 可定制化



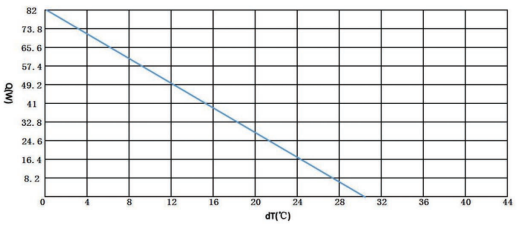
Technical Parameters 技术参数

Model No 型号	AAT-085-24
Max Cooling Power 最大制冷量 (W)	82
Running Current 额定工作电流 (A)	4.9
Nominal Voltage 额定工作电压 (V)	24
Max Input Voltage 最大输入电压 (V)	27
Input power 输入功率 (W)	118
Working temperature 工作温度 (℃)	-10 to 50
Net Weight 净重 (KG)	3.7
MTBF (Fan-hrs 小时)	70,000

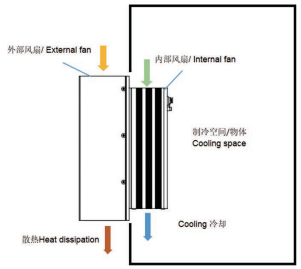
Dimension 尺寸图



Performance Graph 性能曲线图



Installation Instruction 安装示意图



Thermoelectric Assembly
热电组件

Liquid to Air series 液体对空气系列

Cool or heat a liquid or gas flowing through the liquid block. The LA series are designed for a recycling system. It is in application of cooling tissue or other areas of the body in laser or microwave thermal therapy,cooling or heating in capillary electrophoresis, cooling of power lasers and other sensitive electronics.
冷却或加热流经水冷板的液体或气体。LA 系列是为再循环系统设计的。可应用于激光或微波热疗中冷却组织或身体的其他区域，毛细管电泳中的冷却或加热，功率激光器和其他敏感电子设备的冷却。

Application 应用


Analytical
分析仪器


Medical
医疗设备

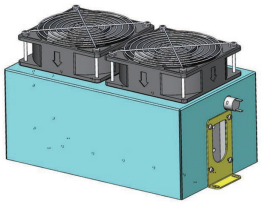

Laser
激光


Industrial
工业

Model.No.	Pc Max (W)	Current (A)	Voltage (V)	Input Power(W)	Working Temp(℃)	Weight (Kg)	Dimension L X W X H (mm)
LA-045-12-00	45	6.5	12	78	-10 ~ 50	1.3	160 X 122 X 91
LA-045-24-00	45	3.2	24	76.8		1.3	160 X 122 X 91
LA-075-12-00	72	7.6	12	91.2		1.8	230 X 122 X 91
LA-075-24-00	72	3.8	24	91.2		1.8	230 X 122 X 91
LA-115-24-00	115	6.5	24	156		3	300 X 152 X 108
LA-115-48-00	115	3.3	48	158.4		3	300 X 152 X 108
LA-160-24-00	160	9.5	24	228		3.5	300 X 152 X 108
LA-160-48-00	160	4.8	48	230.4		3.5	300 X 152 X 108

Liquid to Air series 液体对空气系列

LA-300-24



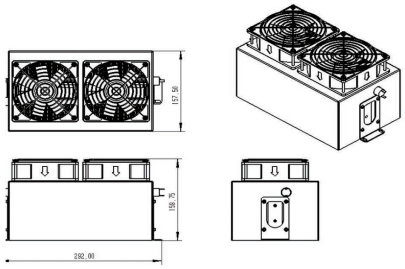
Main Features 特点

- Compact design 结构紧凑
- Precise temperature control 精准控温
- High cooling power 高制冷量
- High efficiency (COP) 高效率
- Customizable 可定制化

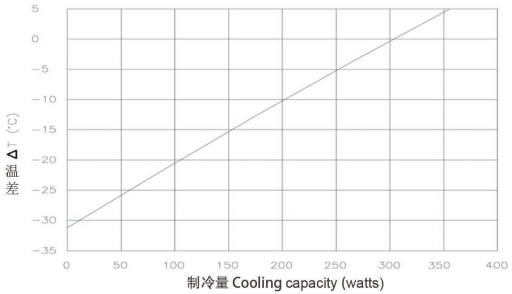
Technical Parameters 技术参数

Model No 型号	LA-300-24
Max Cooling Power 最大制冷量 (W)	300
Running Current 额定工作电流 (A)	14
Nominal Voltage 额定工作电压 (V)	24
Max Input Voltage 最大输入电压 (V)	27
Input power 输入功率 (W)	350
Working temperature 工作温度 (℃)	-10 to 50
Net Weight 净重 (KG)	6.2
MTBF (Fan-hrs 小时)	70,000

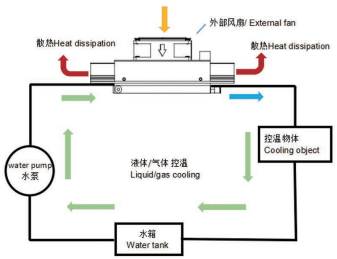
Dimension 尺寸图



Performance Graph 性能曲线图



Installation Instruction 安装示意图



Thermoelectric Assembly
热电组件

Liquid to liquid series 液体对液体系列

Cool or heat a liquid or gas flowing through the cold side liquid block. Heat is dissipated through the chilled liquid on the hot side. It is in application of medical and analytical equipment,cooling or heating of process fluids.
冷却或加热流经冷端冷板的液体或气体。热量被热端冷板的液体吸收并消散。应用于医疗和分析设备，过程流体的冷却或加热。

Application 应用

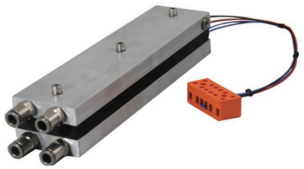

Analytical
分析仪器


Medical
医疗设备


Laser
激光


Industrial
工业

型号 Model No.	制冷量 Pc Max (W)	电流 Current (A)	电压 Voltage (V)	输入功率 Input Power (W)	工作温度 Working Temp(℃)	重量 Weight (Kg)	尺寸 Dimension L X W X H (mm)
PL-060-12-00	60	4.2	12	50.4	-10 ~ 60	0.4	100 X 60 X 36
PL-120-12-00	120	8.4	12	100.8		0.68	140 X 60 X 36
PL-120-24-00	120	4.2	24	100.8		0.68	140 X 60 X 36
PL-210-24-00	210	8.1	24	194.4		1.3	240 X 60 X 36
PL-210-48-00	210	4.1	48	196.8		1.3	240 X 60 X 36

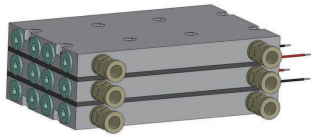


Liquid to liquid series 液体对液体系列

LL-600-24

Main Features 特点

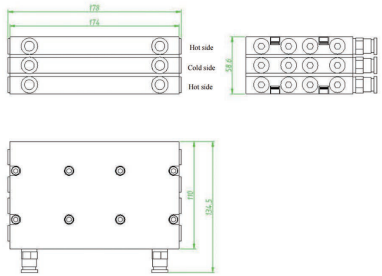
- Compact design 结构紧凑
- Precise temperature control 精准控温
- High reliability 高可靠性
- High efficiency 高效率
- Customizable 可定制化



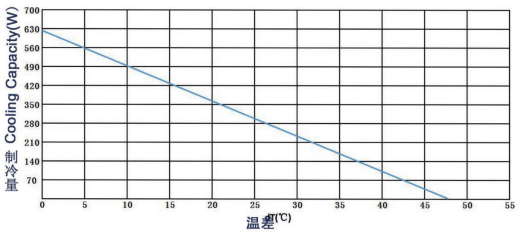
Technical Parameters 技术参数

Model No 型号	LL-600-24
Max Cooling Power 最大制冷量 (W)	620
Running Current 额定工作电流 (A)	40.6
Nominal Voltage 额定工作电压 (V)	24
Max Input Voltage 最大输入电压 (V)	27
Input power 输入功率 (W)	974
Working temperature 工作温度 (℃)	-10 to 60
Net Weight 净重 (KG)	5.8
MTBF (Fan-hrs 小时)	100,000

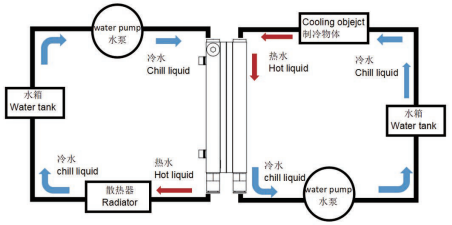
Dimension 尺寸图



Performance Graph 性能曲线图



Installation Instruction 安装示意图



Thermoelectric Assembly
热电组件

Plate to Liquid series 平板对液体系列

Cool or heat objects attached directly on the cold plate, or enclosures by attaching a thermal conductive container to the cold plate. The liquid circulation is normally consists of a pump and a liquid to air heat exchanger to remove the heat into the ambient air. It is in application of electroncs components, laser cooling and analytical instruments.
冷却或加热直接固定在冷板上的物体，或则通过导热容器连接到冷板上的箱体。液体循环通常包括水泵及液体对空气的热交换器人把热量转移到周围的空气中去。可应用于电子元器件、激光冷却和分析仪器的温度循环等。

Application 应用


Analytical
分析仪器


Medical
医疗设备


Laser
激光


Industrial
工业

Model.No.	Pc Max (W)	Current (A)	Voltage (V)	Input Power (W)	Working Temp(℃)	Weight (Kg)	Dimension L X W X H (mm)
PL-060-12-00	60	4.2	12	50.4	-10 ~ 60	0.4	100 X 60 X 36
PL-120-12-00	120	8.4	12	100.8		0.68	140 X 60 X 36
PL-120-24-00	120	4.2	24	100.8		0.68	140 X 60 X 36
PL-210-24-00	210	8.1	24	194.4		1.3	240 X 60 X 36
PL-210-48-00	210	4.1	48	196.8		1.3	240 X 60 X 36

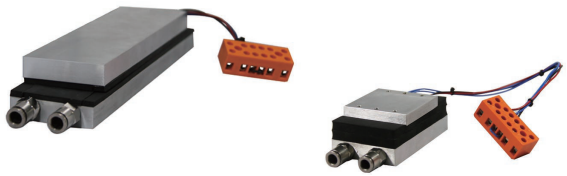
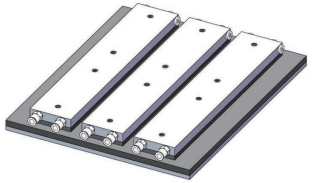


Plate to liquid series 平板对液体系列

PL-350-24



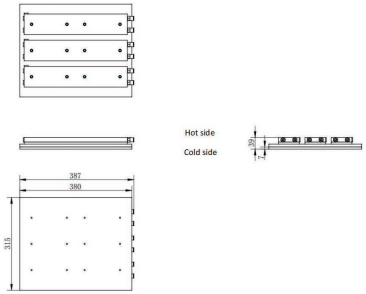
Main Features 特点

- High cooling power 制冷功率高
- Precise temperature control 精准控温
- High reliability 高可靠性
- High efficiency (COP) 高效率
- Customizable 可定制化

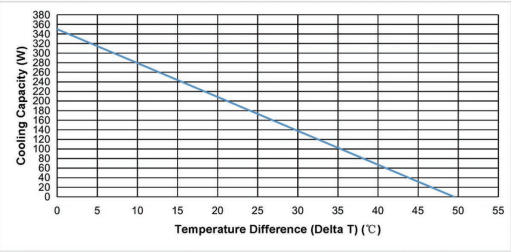
Technical Parameters 技术参数

Model No 型号	PL-350-24
Max Cooling Power 最大制冷量（W)	350
Running Current 额定工作电流（A)	16.2
Nominal Voltage 额定工作电压（V)	24
Max Input Voltage 最大输入电压（V)	27
Input power 输入功率（W)	389
Net Weight 净重（KG)	6.8
MTBF （hrs 小时)	100,000

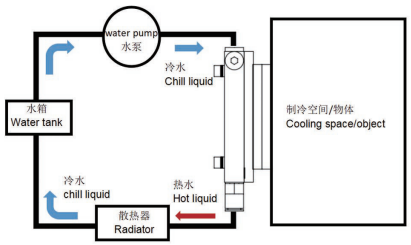
Dimension 尺寸图



Performance Graph 性能曲线图



Installation Instruction 安装示意图



Thermoelectric Assembly
热电组件

Direct to Air series DA 系列

Cool or heat objects attached directly on the cold plate, or enclosures by attaching a thermal conductive container to the cold plate.Heat is absorbed through a cold plate, pumping the heat through the TEM (Thermoelectric Modules) and dissipating it into the air through a heat sink.It is in application of Analytical storage,compartment temperature control,medical diagnostic, chamber refrigeration.
冷却或加热直接固定在冷板上的物体，或则通过导热容器连接到冷板上的箱体。热量通过冷板吸收，通过 TEM（热电模块）泵送热量，并通过散热器将其消散到空气中。可应用于分析存储、隔间温度控制、医疗诊断、箱体冷却等。

Application 应用


Analytical
分析仪器


Medical
医疗设备


Laser
激光


Industrial
工业

型号 Model No.	制冷量 Pc Max (W)	电流 Current (A)	电压 Voltage (V)	输入功率 Input Power (W)	工作温度 Working Temp(℃)	重量 Weight (Kg)	尺寸 Dimension L X W X H (mm)
DA-011-05-00	11	2.2	5	11	-10 ~ 50	0.2	60 X 44 X 56
DA-011-12-00	11	1.4	12	17		0.2	60 X 44 X 56
DA-025-12-00	25	2.4	12	29		0.6	99 X 66 X 85
DA-025-24-00	25	1.6	24	38		0.6	99 X 66 X 85
DA-031-12-00	31	3.1	12	37		0.6	99 X 66 X 85
DA-031-24-00	31	1.5	24	36		0.6	99 X 66 X 85
DA-040-24-00	40	2.9	24	70		0.8	180X 66 X 85
DA-065-12-00	63	5.4	12	65		1	180X 66 X 85
DA-065-24-00	63	2.8	24	67		1	180X 66 X 85

Direct to Air series DA 系列

DA-65-24

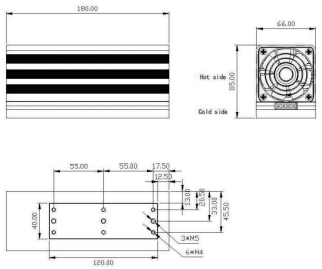
Main Features 特点

- Compact design 结构紧凑
- Precise temperature control 精准控温
- High reliability 高可靠性
- High efficiency（COP）高效率
- Customizable 可定制化

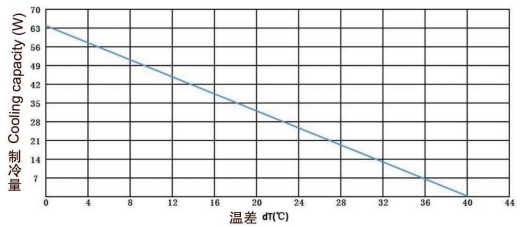
Technical Parameters 技术参数

Model No 型号	DA-65-24
Max Cooling Power 最大制冷量（W)	63
Running Current 额定工作电流（A)	2.8
Nominal Voltage 额定工作电压（V)	24
Max Input Voltage 最大输入电压（V)	27
Input power 输入功率（W)	67
Working temperature 工作温度（℃)	-10 to 50
Net Weight 净重（KG)	1.0
MTBF （Fan-hrs 小时)	50,000

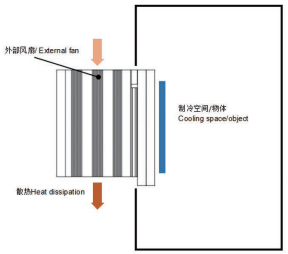
Dimension 尺寸图



Performance Graph 性能曲线图



Installation Instruction 安装示意图



Dehumidifier

除湿机

The dehumidifier use semiconductor thermoelectric technology. By making the surface temperature of the condenser in the dehumidifier lower than the dew point of the air, the vapor in the air condenses on the surface of the condenser, condensed water is removed out and realize the purpose of dehumidification and moisture-proof. It can effectively reduce the air humidity in a relatively confined space, and can be widely used in areas with high requirements for air humidity, damp proof, anti-condensation, anti-mold and anti-corrosion. It' s widely use in electrical and power, traffic,communication,industrial equipment,storage and exhibition market.

除湿机采用半导体热电技术。 通过使除湿机内冷凝器的表面温度低于空气的露点温度， 使空气中的水蒸气在冷凝器表面凝结， 将冷凝水排出， 实现除湿防潮的目的。 可有效降低相对密闭空间内的空气湿度， 可广泛应用于对空气湿度、 防潮、 防结露、 防霉、 防腐等要求较高的区域。

广泛应用于电力、 交通、 通讯、 工业设备、 仓储及展览行业。

Mini Dehumidifier 微型除湿机

Main Features 主要特点

1. Low power consumption, lager volume dehumidification. 功耗低，除湿量大。
2. Real time sampling of humidity, rapid response to changes in ambient humidity.
   实时对湿度进行采样，对环境湿度变化反应迅速。
3. Drainage system condenses condensate water out of the cabinet timely.
   排水系统及时将冷凝水排出柜外。
4. Automatic defrosting at low temperature. 低温自动除霜。
5. Automatic stopping at high temperature and double temperature switchprotection.
   高温自动保护及风扇锁死自动断电保护，安全可靠。

Item	Parameter	
Model No	PN-D2412D	PN-D3024D
Working power supply	DC 12V	DC24V
Electric power	24W	30W
Detection range	1%RH～99%RH	
Measurement accuracy	±3%RH	
Start value	55%RH（Adjustable）	
Stop value	35%RH（Adjustable）	
Dehumidifying capacity	250ml/24h（35℃ RH=85%）	
Storage temperature	-30℃～70℃	
Operating temperature	-10℃～55℃	
Outline dimension	104mm*64mm*66mm	
Net weight	320g	
Aqueduct specification	Heat-resistant silicone pipe L=1m	

Intelligent Dehumidifier 智能除湿机

Main Features 主要特点

1. High dehumidifying capacity, excellent dehumidification and moisture-proof performance.
   除湿能力强，除湿防潮性能优良。
2. Users can set the humidity parameters according to their requirements, flexible and convenient for a wide range of applications. 用户可根据需要设置湿度参数，灵活方便，适用范围广。
3. Suitable for a variety of power supplies, including DC12V, DC24V, and AC110 to 230V.
   适用于 DC12V、DC24V、AC110 ～ 230V 多种电源。
4. External temperature and humidity sensor facilitates sensor location and maintenance.
   外置温湿度传感器，方便传感器定位和维护。
5. Low power consumption, no refrigerant, environment friendly and high safety.
   低功耗、无制冷剂、环保、安全性高。
6. Equipped with relay connection port for control of external heater.
   配备继电器连接端口，用于控制外部加热器。
7. RS485 communication function. 具有 RS485 通讯功能。

Item	Parameter		
Model	PN-D6012A	PN-D6424A	PN-D70ACA
Working power supply	DC 12V	DC 24V	AC 110~230V
Electric power	60W	64W	70W
Dehumidifying capacity	520ml/24h（35℃ RH=85%）		
Outline dimension	100mmX195mmX94mm		
Humidity detection range	0%RH～100%RH		
Humidity measurement accuracy	±2%RH		
Temp measurement accuracy	0.3℃		
Dehumidification start value	User setting(1%RH-99%RH)		
Dehumidification stop value	User setting(1%RH-99%RH)		
Storage temperature	-30℃～70℃		
Operating temperature	-20℃～60℃		-20℃～55℃
Relay control	DC 5V for external heater		
Communication	RS485		
Temp and humidity sensor	External		
Installation	DIN35 and Screw		
More function	•High humidity alarm • Low humidity alarm • High temperature alarm • low temperature alarm • Running duration monitor • Maintenance period setting		
Weight	770g	770g	880g
Drainage	External aqueduct		

Thermoelectric Assembly
热电组件

PCR Series PCR 系列

Cool or heat objects attached directly on the cold plate,heat is absorbed through a cold plate, pumping the heat through the TEM (Thermoelectric Modules) and dissipating it into the air through a heat sink. The object fixed on the cold plate can achieve rapid heating and cooling effects.
冷却或加热放置在孔板里的物体，热量通过冷板吸收，通过 TEM（热电模块）泵送热量，并通过散热器将其消散到空气中，使放置在孔板里的物体达到快速升降温效果。

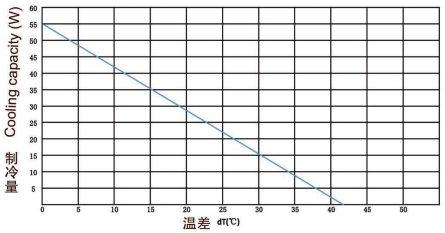
Main Features 主要特点

- Compact design 结构紧凑
- Precise temperature control 精准控温
- High reliability 高可靠性
- Rapid heating and cooling 升降温速率高
- Customizable 可定制化

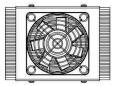
Technical Parameters 技术参数

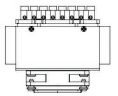
Model No 型号	PCRA-045-12
Max Cooling Power 最大制冷量（W)	45
Running Current 额定工作电流（A)	6
Nominal Voltage 额定工作电压（V)	12
Max Input Voltage 最大输入电压（V)	14
Input power 输入功率（W)	84
Net Weight 净重（KG)	0.4
MTBF （Fan-hrs 小时)	70,000

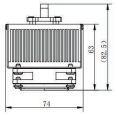
Performance Graph 性能曲线图

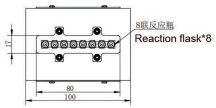


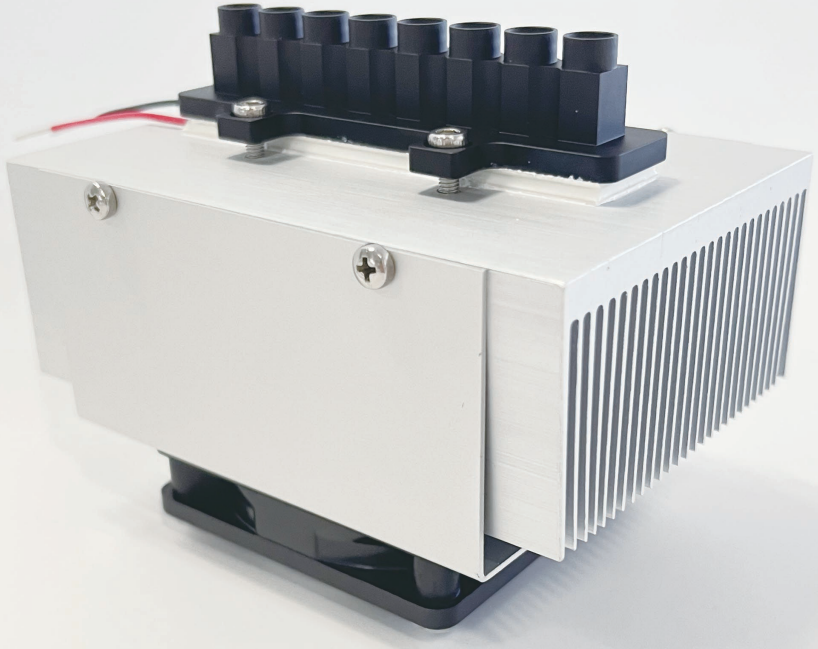
Dimension 尺寸图











Thermoelectric Assembly
热电组件

Metal Bath Series 金属浴系列

Cool or heat objects attached directly on the cold plate,heat is absorbed through a cold plate, pumping the heat through the TEM (Thermoelectric Modules) and dissipating it into the air through a heat sink. The object fixed on the cold plate can achieve rapid heating and cooling effects.
冷却或加热放置在孔板的物体，热量通过冷板吸收，通过 TEM（热电模块）泵送热量，并通过散热器将其消散到空气中，使放置在孔板里的物体达到快速升降温效果。

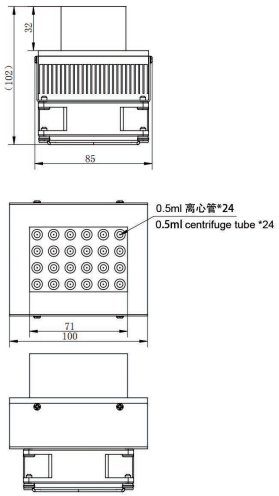
Main Features 主要特点

- Compact design 结构紧凑
- Precise temperature control 精准控温
- High reliability 高可靠性
- Rapid heating and cooling 升降温速率高
- Customizable 可定制化

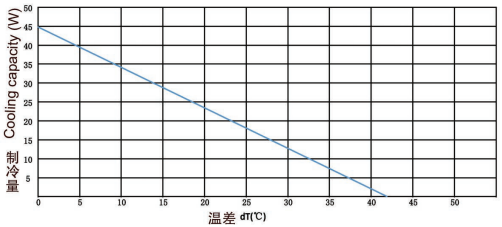
Technical Parameters 技术参数

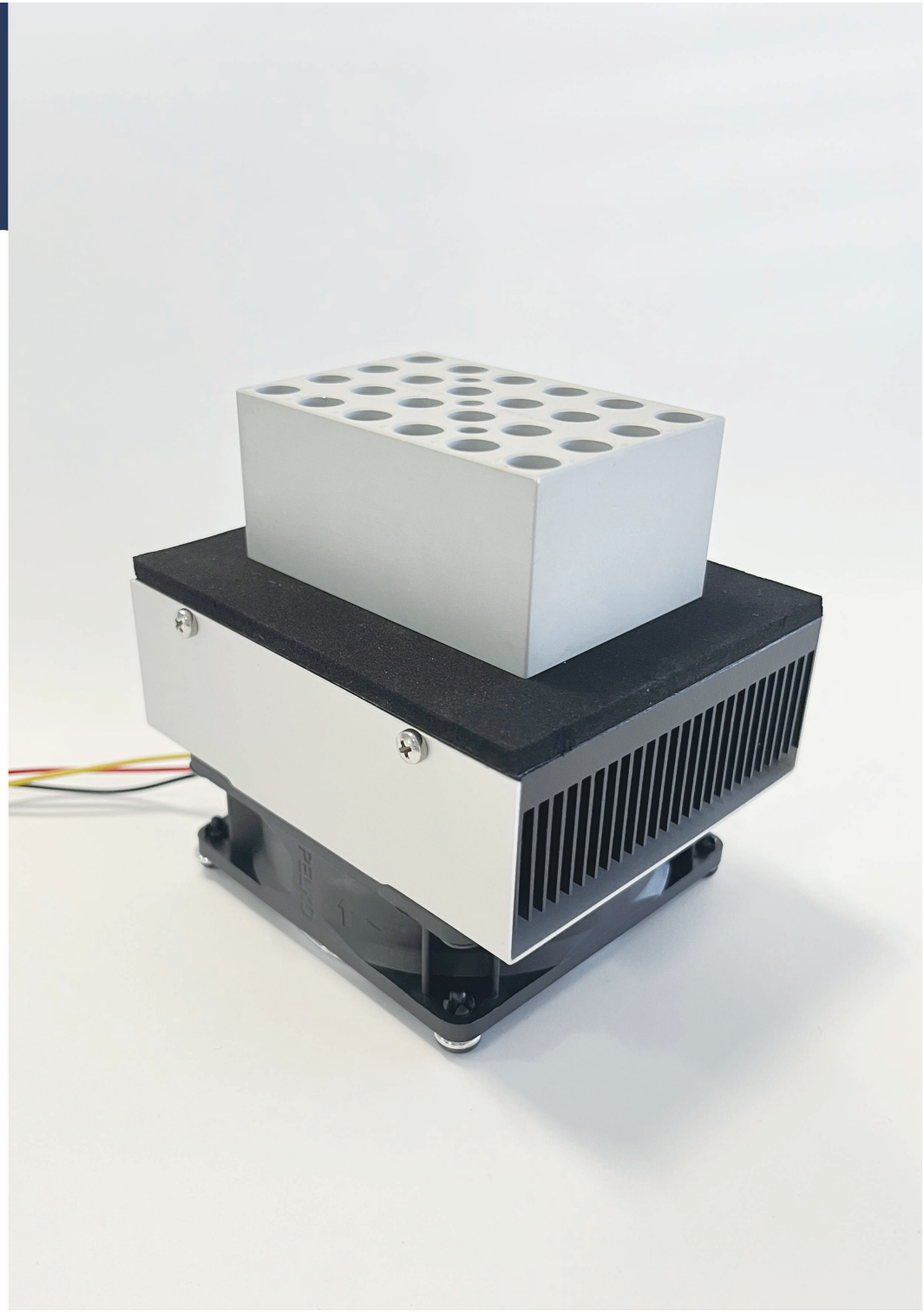
Model No 型号	PCRA-055-12-00
Max Cooling Power 最大制冷量（W)	55
Running Current 额定工作电流（A)	7
Nominal Voltage 额定工作电压（V)	12
Max Input Voltage 最大输入电压（V)	14
Input power 输入功率（W)	84
Net Weight 净重（KG)	0.6
MTBF （Fan-hrs 小时)	70,000

Dimension 尺寸图



Performance Graph 性能曲线图





Thermoelectric Assembly
热电组件

Microfluidic Series 微流控系列

Cool or heat objects attached directly on the cold plate,heat is absorbed through a cold plate, pumping the heat through the TEM (Thermoelectric Modules) and dissipating it into the air through a heat sink. The object fixed on the cold plate can achieve rapid heating and cooling effects.
冷却或加热直接固定在冷板上的物体，热量通过冷板吸收，通过 TEM（热电模块）泵送热量，并通过散热器将其消散到空气中，使固定在冷板上的物体达到快速升降温效果。

PA-35-24

Application 应用


Analytical
分析仪器

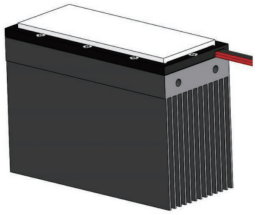

Medical
医疗设备


Laser
激光

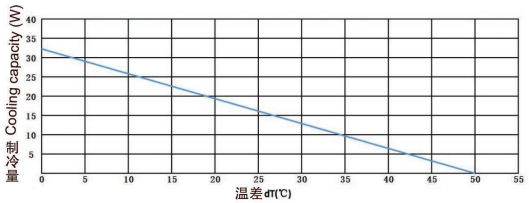

Industrial
工业

Technical Parameters 技术参数

Model No 型号	PA-35-24
Max Cooling Power 最大制冷量（W)	32
Running Current 额定工作电流（A)	2.6
Nominal Voltage 额定工作电压（V)	24
Max Input Voltage 最大输入电压（V)	26
Input power 输入功率（W)	62.4
Net Weight 净重（KG)	0.13



Performance Graph 性能曲线图



Dimension 尺寸图