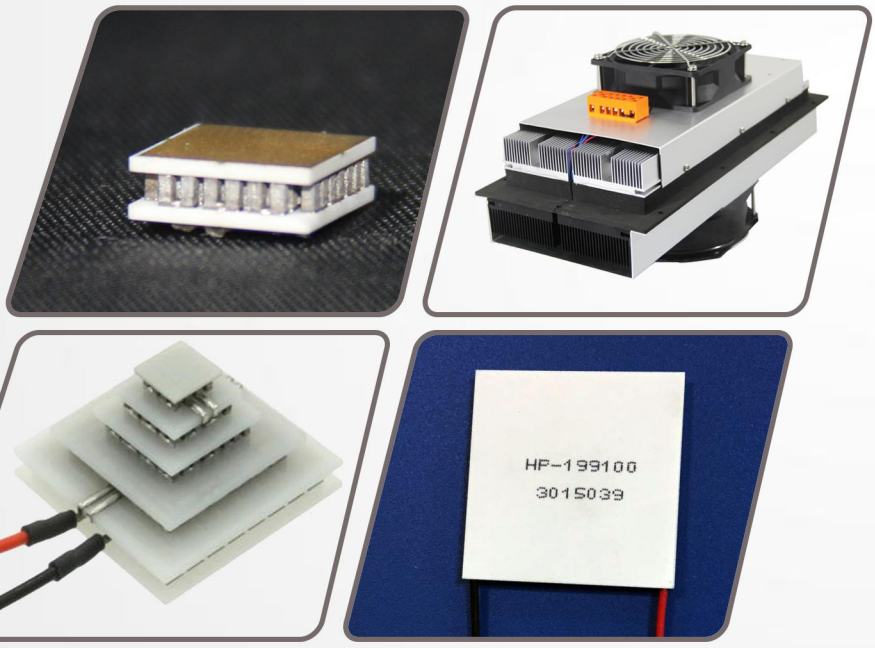
P&N Technology

Thermoelectric Product

Designer

Manufacturer



P&N TECHNOLOGY

P&N Technology was founded in Nov 2012, located at Torch (Xiang ' an) Hi-tech Zone, Xiamen city of Fujian province in China, close to the new Xiamen International Airport. The Hi-tech Zone has convenient transportation, excellent infrastructure and facilities.

P&N Tech develops various Thermoelectric Modules, Thermoelectric Assemblies, and related technical consulting service.

We have a professional team, strong technology, advance processes, modern equipment and efficient management systems.

We P&N Tech commit to providing customers with advanced,complete,customized thermal management and thermal power generation solutions.

Established: **2012**

Headquarters: **Xiamen, China**

Capital: **US$ 3M (2018)**

Investment: **US$ 5M (2018)**

Employees: **168**

Manufacturing Base: **Xiamen**

Advanced Manufacturing Capacities

With an objective of delivering large volumes in minimum time, P&N establishes 5 TEM and 5 TEA product lines, which means the capacity of 3M PCs TEM and 600K PCs TEA per year.

P&N has the right combination of expertise and manufacturing strengths to ensure you get the best in terms of quality and cost.

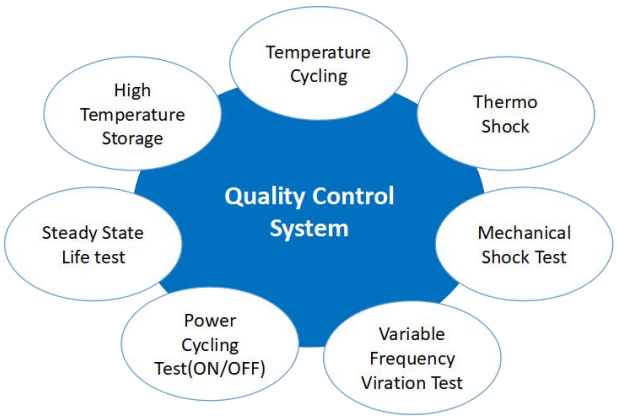
Fluid Thinking, Smart Solutions

Over 10 years experiences of advanced research ensure that P&N remains at the forefront of technology and can advise our clients from a basis of up-to-date knowledge.
P&N has established R&D center with sophisticated lab equipment, which provides a wide range of technical consultancy services in the design of thermoelectric projects. These services can be used through a project – from initial planning and feasibility studies, through preliminary and detailed design, to construction and operation. We focus on delivering appropriate solutions for the cost-effective development of projects.

State-of-the-art Equipment And Process To Ensure Cutting-edge Quality

P&N is committed to quality and has in place world-class processes to ensure that the products meet global standards. We has established Lab with advanced equipment that undergo periodic calibrated to ensure precision.

P&N Technology's Thermoelectric products are inspected and tested according to **MIL-STD-883** and **Telcordia GR-468-CORE** standard.



Quality Certification

- ISO9001:2008
- ISO:TS16949
- All products are compliance with RoHS and REACH

Cooling Capacity Test

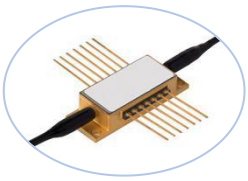
Power on/off Test

Thermo Shock Test

TECHNOLOGY ADVANTAGE

- Small size
- High solid-state reliability
- Precise temperature control
- Combine with heating & cooling
- Environment friendly
- Spot cooling

Medical & biological instrument
PCR,Centrifuges, Therapeutic appliances & medical lasers, analyzer, ..etc



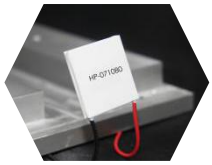
Optoelectronic
laser diode & Diode Pump Solid State Laser, IR detector, CCD camera..etc

Consumer electronics
electric coolers, mini-fridge, wine & beer coolers, Mosquito magnets, water dispenser..etc

Automotive
Battery cooling, Seat heating, Specialty air conditioning units

Telecom equipment
BTS battery cabinet temperature control, compressor -free cooling of cellular BTS. Electrical cabinet..etc

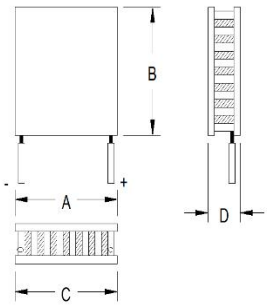
Power Generation
Generating electricity from waste heat
Used in mosquito trap



* For more application, please consult with PN's engineer team.

Standard Module

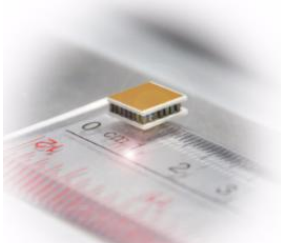
It is suitable for the higher current and larger cooling requirements. Typical application includes experimental, scientific and biomedical instruments, laboratory equipment, industry and electrical equipment and consumables.

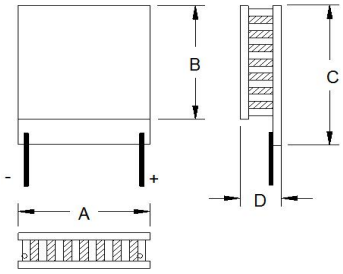


No.	Model No.	I max (A)	Th=27°C			N	Dimensions (mm)		
			Q max (W)	V max (V)	ΔT max (°C)		A/C	B	D
1	TES1-031021	2.1	4.4	3.8	68	31	12	12	3.4
2	TES1-071021	2.1	10.1	8.6	68	71	18	18	3.4
3	TES1-127021	2.1	18.1	15.4	68	127	25	25	3.4
4	TES1-031025	2.5	5.3	3.8	68	31	15	15	4.0
5	TES1-063025	2.5	10.6	7.6	68	63	15	30	4.0
6	TES1-071025	2.5	12.0	8.6	68	71	23	23	4.0
7	TES1-127025	2.5	21.4	15.4	68	127	30	30	4.0
8	TES1-031030	3.0	6.3	3.8	68	31	15	15	3.6
9	TES1-063030	3.0	12.7	7.6	68	63	15	30	3.6
10	TES1-071030	3.0	14.4	8.6	68	71	23	23	3.6
11	TES1-127030	3.0	25.7	15.4	68	127	30	30	3.6
12	TES1-031040	3.9	8.2	3.8	68	31	15	15	3.2
13	TES1-063040	3.9	16.6	7.6	68	63	15	30	3.2
14	TES1-071040	3.9	18.7	8.6	68	71	23	23	3.2
15	TES1-127040	3.9	33.4	15.4	68	127	30	30	3.2
16	TEC1-031040	3.9	8.2	3.8	69	31	20	20	4.7
17	TEC1-035040	3.9	9.2	4.2	69	35	15	30	4.7
18	TEC1-071040	3.9	18.7	8.6	69	71	30	30	4.7
19	TEC1-127040	3.9	33.4	15.4	69	127	40	40	4.7
20	TEC1-031060	6.0	12.5	3.8	69	31	20	20	3.8
21	TEC1-035060	6.0	14.2	4.2	69	35	15	30	3.8
22	TEC1-071060	6.0	28.7	8.6	69	71	30	30	3.8
23	TEC1-127060	6.0	51.4	15.4	69	127	40	40	3.8
24	TEC1-031080	8.5	16.8	3.8	69	31	20	20	3.3
25	TEC1-035080	8.5	19.0	4.2	69	35	15	30	3.3
26	TEC1-071080	8.5	38.5	8.6	69	71	30	30	3.3
27	TEC1-127080	8.5	72.0	15.4	69	127	40	40	3.3
28	TEC1-127090	9.0	77.1	15.4	71	127	62	62	5.6
29	TEC1-127140	14	120.0	15.4	71	127	62	62	4.6

Miniature Module

It is suitable for various cooling and heat applications where only a limited area and a small amount of cooling or heat are involved. Typical applications are laser diode cooling, infrared systems, electro-optics and electronic equipment and other low wattage applications.

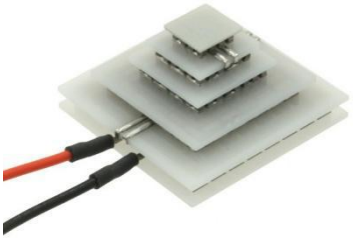


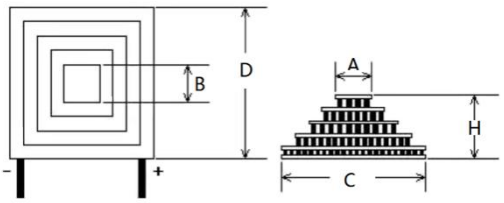


No.	Model No.	I max (A)	Th=27°C			N	Dimensions (mm)			
			Q max (W)	V max (V)	ΔT max (°C)		A	B	C	D
1	TES1-018008	0.8	0.97	2.1	67	18	4.9	4.9	6.5	2.4
2	TES1-032008	0.8	1.72	3.8	67	32	6.5	6.5	8.1	2.4
3	TES1-066008	0.8	3.56	7.9	67	66	9.8	8.9	11.4	2.4
4	TES1-007012	1.2	0.57	0.8	67	7	4	4	4	2.7
5	TES1-017012	1.2	1.38	2.0	67	17	6.6	6.6	6.6	2.7
6	TES1-018012	1.2	1.46	2.1	67	18	6.0	6.2	7.2	2.7
7	TES1-024012	1.2	1.97	2.7	67	24	6.6	8.8	10.8	2.5
8	TES1-030012	1.2	2.43	3.6	67	30	6.2	10.3	12.3	2.3
9	TES1-031012	1.2	2.51	3.7	67	31	8.8	8.8	8.8	2.7
10	TES1-031012	1.2	2.51	3.7	67	31	8.8	8.8	11.0	2.7
11	TES1-065012	1.2	5.34	7.8	67	65	13.2	12.1	13.2	2.7
12	TES1-068012	1.2	5.59	8.2	67	68	13.2	13.2	13.2	2.7
13	TES1-007015	1.5	0.71	0.8	67	7	4.0	4.0	4.0	2.4
14	TES1-017015	1.5	1.72	2.0	67	17	6.6	6.6	6.6	2.4
15	TES1-018015	1.5	1.82	2.1	67	18	6.0	6.2	7.2	2.4
16	TES1-024015	1.5	2.42	2.7	67	24	6.6	8.8	10.8	2.2
17	TES1-030015	1.5	3.03	3.6	67	30	6.2	10.3	12.3	2.1
18	TES1-031015	1.5	3.13	3.7	67	31	8.1	8.1	8.1	2.4
19	TES1-031015	1.5	3.13	3.7	67	31	8.8	8.8	8.8	2.4
20	TES1-031015	1.5	3.13	3.7	67	31	8.8	8.8	11.0	2.4
21	TES1-065015	1.5	6.57	7.8	67	65	13.2	12.1	13.2	2.4
22	TES1-068015	1.5	6.87	8.2	67	68	13.2	13.2	13.2	2.4
23	TES1-007020	2.0	0.95	0.8	67	7	4.0	4.0	4.0	2.2
24	TES1-017020	2.0	2.30	2.0	67	17	6.6	6.6	6.6	2.2
25	TES1-018020	2.0	2.43	2.1	67	18	6.0	6.2	7.2	2.2
26	TES1-024020	2.0	3.32	2.7	67	24	6.6	8.8	10.8	2.0
27	TES1-030020	2.0	4.04	3.6	67	30	6.2	10.3	12.3	1.8
28	TES1-031020	2.0	4.18	3.7	67	31	8.1	8.1	8.1	2.2
29	TES1-031020	2.0	4.18	3.7	67	31	8.8	8.8	8.8	2.2
30	TES1-031020	2.0	4.18	3.7	67	31	8.8	8.8	11.0	2.2
31	TES1-065020	2.0	8.76	7.8	67	65	13.2	12.1	13.2	2.2
32	TES1-068020	2.0	9.16	8.2	67	68	13.2	13.2	13.2	2.2

Multistage Module

The multi-stage modules are designed to provide significantly higher temperature difference. They are suitable for low temperature applications where a small or medium cooling power is required. Typical application areas include CCD arrays-detectors and electro-optics.

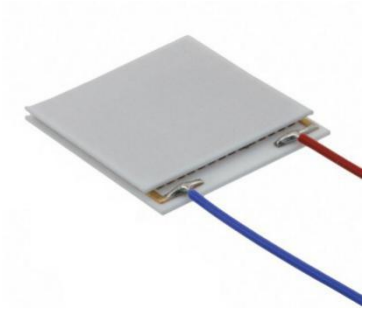


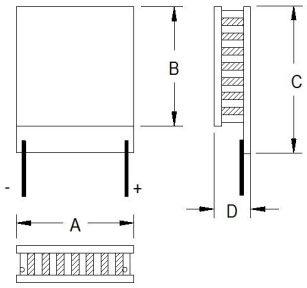


No.	Model No.	I max (A)	Th=27°C			Dimensions (mm)				
			Q max (W)	V max (V)	ΔT max (°C)	A	B	C	D	H
1	TES2-010014	1.45	0.42	0.84	86	3.2	3.2	3.9	3.9	3.8
2	TES2-024014	1.40	1.03	1.96	83	4.1	4.1	6.1	6.1	4.2
3	TES2-083006	0.65	1.19	7.96	92	4.9	4.9	9.8	9.8	4.2
4	TES2-009020	2.00	0.41	0.80	91	3.5	3.5	8.0	8.0	7.4
5	TES2-048021	2.10	3.11	3.80	81	11.5	11.5	15.0	15.0	6.6
6	TEC2-048040	4.00	6.04	3.80	81	15.0	15.0	20.0	20.0	7.2
7	TEC2-102043	4.30	12.65	8.60	85	20.0	20.0	30.0	30.0	7.2
8	TES2-190028	2.80	16.05	15.50	83	30.0	30.0	30.0	30.0	6.5
9	TEC2-190060	6.00	34.51	15.50	83	40.0	40.0	40.0	40.0	7.5
10	TES3-026013	1.30	0.30	1.94	110	2.5	2.5	6.6	6.6	5.2
11	TES3-046013	1.30	0.60	3.40	109	4.1	4.4	8.8	8.8	5.8
12	TES3-229018	1.80	6.48	15.40	96	15.0	15.0	30.0	30.0	9.5
13	TEC3-229035	3.50	12.58	15.40	96	20.0	20.0	40.0	40.0	10.4
14	TES4-246013	1.30	2.87	14.60	107	11.5	11.5	30.0	30.0	14.0
15	TEC4-246030	3.10	6.84	14.60	107	15.0	15.0	40.0	40.0	13.8
16	TES5-253015	1.60	1.74	14.50	118	8.0	8.0	30.0	30.0	15.4
17	TEC5-253030	3.00	3.37	14.50	118	10.0	10.0	40.0	40.0	16.9
18	TES6-255015	1.50	0.63	14.50	131	3.5	3.5	30.0	30.0	18.3
19	TEC6-255030	3.00	1.22	14.50	131	5.0	5.0	40.0	40.0	20.1

High Performance Module

Typical application for experimental instruments, chillers, PCR cyclers and analyzers, etc.

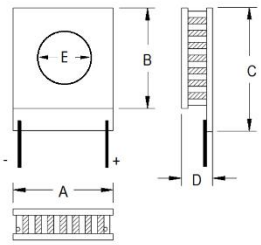




No.	Model No.	I max (A)	Th=27°C			Dimensions (mm)			
			Q max (W)	V max (V)	ΔT max (°C)	A	B	C	D
1	HP-127040	3.9	35.0	15.4	72	30	30	34	3.6
2	HP-127040	3.9	37.0	15.4	72	40	40	44	4.8
3	HP-127060	6.0	55.0	15.4	72	40	40	44	3.9
4	HP-161050	5.0	62.3	20.0	72	40	40	44	3.6
5	HP-161070	6.7	83.9	20.0	72	40	40	44	3.3
6	HP-127080	8.5	77.0	15.4	72	40	40	44	3.3
7	HP-199120	12.0	165.0	24.0	72	40	40	44	3.1
8	HP-241060	6.0	113.0	29.8	72	55	55	55	4.3

Center Hole and Annual module

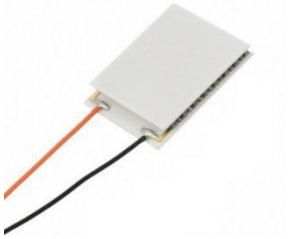
Center Hole for transmission of light, wires, probes or other hardware through the TEM. It is suitable for industrial, electrical equipment, laboratory and optical-electronics.

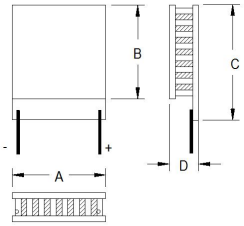


No.	Model No.	I max (A)	Th=27°C			N	Dimensions (mm)				
			Q max (W)	V max (V)	ΔT max (°C)		A	B	C	D	E
1	TES1-095030	3.0	19.3	11.5	67	95	30	30	30	3.6	14.5
2	TES1-125030	3.0	25.3	15.2	67	125	30	30	30	3.6	3.6
3	TES1-095040	3.9	25.1	11.5	67	95	30	30	30	3.2	14.5
4	TES1-125040	3.9	32.9	15.2	67	125	30	30	30	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

High Temperature module

It has super cycling capacity and is suitable for extra high temperature, or power generator from waste heat.

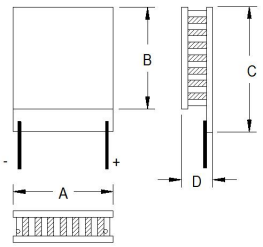




No.	Model No.	I max (A)	Th=27°C			N	Dimensions (mm)			
			Q max (W)	V max (V)	ΔT max (°C)		A	B	C	D
1	HTES1-127030	2.8	24.0	14.40	68	127	30	30	34	3.2
2	HTES1-127040	3.9	33.0	14.40	68	127	30	30	34	3.2
3	HTEC1-071040	3.7	18.0	8.10	68	71	30	30	34	4.1
4	HTEC1-127040	3.7	32.0	14.40	68	127	40	40	44	4.1
5	HTEC1-071060	6.0	29.0	8.10	68	71	30	30	34	3.8
6	HTEC1-127060	6.0	51.0	14.40	68	127	40	40	44	3.6
7	HTEC1-071080	8.5	39.0	8.10	68	71	30	30	34	3.3
8	HTEC1-127080	8.5	72.0	14.40	68	127	40	40	44	3.3

Power Generator Module

It is suitable for detector instruments, various environments where hard to get or unsuitable for electrical power, and the excess or waste heat recycling fields.



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

Air to Air System

It is in application of cooling electrical devices, analytical instruments, lasers and commercial refrigeration.

Model.No.	Pc Max (W)	Current (A)	Voltage (V)	Fan Position	Input Power (W)	COP	Ambient (℃)	Weight (Kg)	Dimension L X W X H (mm)
AA-019-12-00	19	2.3	12	Hot & Cold Sides	28	0.68	-10 ~ 52	0.32	80 X 62 X 105
AA-024-12-00	24	2.4	12		29	0.83		0.59	100 X 82 X 115
AA-034-12-00	34	3.5	12		42	0.81		0.91	120 X 102 X 125
AA-040-12-00	41	6.3	12		76	0.54		1.8	160 X 122 X 147
AA-040-24-00	41	3.2	24		77	0.53		1.8	160 X 122 X 147
AA-070-12-00	68	7.6	12		91	0.75		2.5	230 X 122 X 147
AA-070-24-00	68	3.8	24		91	0.75		2.5	230 X 122 X 147
AA-100-24-00	95	6.5	24		156	0.61		4.1	300 X 152 X 166
AA-100-48-00	95	3.3	48		158	0.60		4.1	300 X 152 X 166
AA-150-24-00	143	9.8	24		235	0.61		5.0	300 X 153 X 176
AA-150-48-00	143	4.9	48		235	0.61		5.0	300 X 153 X 176
AA-200-24-00	198	10.8	24		259	0.76		7.3	400 X 181 X 198
AA-200-48-00	198	7.3	48		350	0.57		7.3	400 X 181 X 198

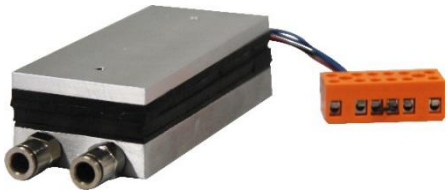
Plate to Air System

It is in application of cooling electrical devices,analytical instruments,lasers and commercial refrigeration.

Model.No.	Pc Max (W)	Current (A)	Voltage (V)	Fan Position	Input Power (W)	COP	Ambient (℃)	Weight (Kg)	Dimension L X W X H (mm)
PA-024-12-00	24	2.4	12	Hot side	29	0.83	-10 ~ 52	0.3	80 X 62 X 69
PA-045-12-00	43	6.5	12		78	0.55		1.2	160 X 122 X 83
PA-045-24-00	43	3.2	24		77	0.56		1.2	160 X 122 X 83
PA-075-12-00	72	7.6	12		91	0.79		1.7	230 X 122 X 83
PA-075-24-00	72	3.8	24		91	0.79		1.7	230 X 122 X 83
PA-115-24-00	113	6.5	24		156	0.72		2.9	300 X 152 X 100
PA-115-48-00	113	3.3	48		158	0.71		2.9	300 X 152 X 100
PA-160-24-00	158	9.5	24		228	0.69		3.5	300 X 152 X 113
PA-160-48-00	158	4.8	48		230	0.69		3.5	300 X 152 X 113

Plate to Liquid System

It is in application of cooling electrical devices, analytical instruments, lasers and commercial refrigeration.



Model.No.	Pc Max (W)	Current (A)	Voltage (V)	Fan Position	Input Power (W)	COP	Ambient (℃)	Weight (Kg)	Dimension L X W X H (mm)
PL-060-12-00	60	4.2	12	-	50	1.19	-10 ~ 63	0.4	100 X 60 X 36
PL-120-12-00	120	8.4	12		101	1.19		0.7	140 X 60 X 36
PL-120-24-00	120	4.2	24		101	1.19		0.7	140 X 60 X 36
PL-210-24-00	210	8.1	24		194	1.08		1.3	240 X 60 X 36
PL-210-48-00	210	4.1	48		197	1.07		1.3	240 X 60 X 36

Liquid to Air 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.

Model. No.	Pc Max (W)	Current (A)	Voltage (V)	Fan Position	Input Power (W)	COP	Ambient (℃)	Weight (Kg)	Dimension L X W X H (mm)
LA-045-12-00	43	6.5	12	Hot side	78	0.55	-10 ~ 52	1.3	160 X 122 X 91
LA-045-24-00	43	3.2	24		77	0.56		1.3	160 X 122 X 91
LA-075-12-00	72	7.6	12		91	0.79		1.8	230 X 122 X 91
LA-075-24-00	72	3.8	24		91	0.79		1.8	230 X 122 X 91
LA-115-24-00	113	6.5	24		156	0.72		3.0	300 X 152 X 108
LA-115-48-00	113	3.3	48		158	0.71		3.0	300 X 152 X 108
LA-160-24-00	158	9.5	24		228	0.69		3.5	300 X 152 X 108
LA-160-48-00	158	4.8	48		230	0.69		3.5	300 X 152 X 108

Liquid to Liquid System

It is in application of Medical and analytical equipment,cooling or heating of process fluids.

Model.No.	Pc Max (W)	Current (A)	Voltage (V)	Input Power (W)	Ambient (℃)	Weight (Kg)	Dimension L X W X H (mm)
LL-060-12-00	60	4.2	12	50	-10 ~ 60	0.5	100 X 60 X 44
LL-120-12-00	120	8.4	12	101		0.8	140 X 60 X 44
LL-120-24-00	120	4.2	24	101		0.8	140 X 60 X 44
LL-210-24-00	210	8.1	24	194		1.4	240 X 60 X 44
LL-210-48-00	210	4.1	48	197		1.4	240 X 60 X 44

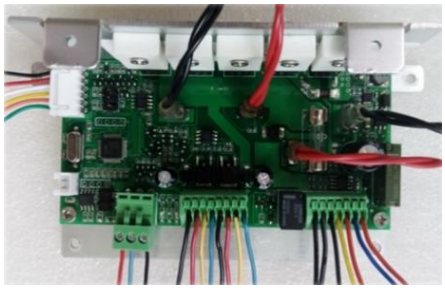
Direct to Air System

It is in application of Analytical storage,compartment temperature control,medical diagnostic, chamber, refrigeration.

Model.No.	Pc Max (W)	Current (A)	Voltage (V)	Input Power (W)	Ambient (℃)	Weight (Kg)	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-032-12-00	32	3.1	12	37		0.6	99 X 66 X 85
DA-032-24-00	32	2.2	24	53		0.6	99 X 66 X 85
DA-040-12-00	39	3.2	12	38		0.8	155X 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

Temperature Controller

The temperature controller is mainly designed for semiconductor cooler to adjust the application environment temperature, we use chip technology with higher performance, lower power consumption.



Series	Model	Parameter		Control Method	Working Mode			RS485 Function	Display	Size L*W*H(mm)
		V	A		C	H	C-H			
G	G1215O02	12	15	ON/OFF	√	√	×	×	√	78X50X23
	G2415O02	24	15	ON/OFF	√	√	×	×	√	78X50X23
	G4815O02	48	15	ON/OFF	√	√	×	×	√	78X50X23
	G1215P02	12	15	PID	√	√	×	×	√	78X50X23
	G2415P02	24	15	PID	√	√	×	×	√	78X50X23
	G4815P02	48	15	PID	√	√	×	×	√	78X50X23
S	S1215O34	12	15	ON/OFF	√	√	√	√	/	114X57X21
	S2415O34	24	15	ON/OFF	√	√	√	√	/	114X57X21
	S4810O34	48	10	ON/OFF	√	√	√	√	/	114X57X21

Note：

1."H"on behalf of the heating， "C"On behalf of the refrigeration,
"H-C"Represents automatic switching of refrigeration and heating

2."√"on behalf of the standard,"/"On behalf of the matching,
"×"Represents no such function.

Item	Value	Item	Value
Working power supply	DC 12V/24V	**Dehumidifying capacity**	250ml/24h (35℃ RH=85%)
Electric power	24W/30W	**Storage temperature**	-30℃ ~ 70℃
Detection range	1%RH ~ 99%RH	**Operating temperature**	-10℃ ~ 55℃
Measurement accuracy	±3%RH	**Outline dimension**	104mm*64mm*66mm
Start value	55%RH (Adjustable)	**Net weight**	320g
Stop value	35%RH (Adjustable)	**Aqueduct specification**	Heat-resistant silicone pipe L=1m

Model No: PN-D2412D / PN-D3024D

Micro Intelligent Dehumidifier

MRC

(Mobile Re-circulating Chiller)

Model No	Pc Max (W)	Working Voltage	Max flow rate	Input power	Ambient temperature	Weight	Dimension L X W X H
MRC150	150W	110~230VAC 50/60Hz	4lpm	280W	-10~50℃	10.5KG	310 X 200 X 350mm
MRC300	300W	110~230VAC 50/60Hz	8lpm	580W	-10~50℃	16.5KG	320 X 210 X 480mm

P&N Technology

Thermoelectric Designer & Manufacturer

INTEGRITY

EXCELLENCE

INNOVATION

RESPONSIBILITY

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