

Thermoelectric

SOLUTIONS

www.lairdtech.com



Laird
TECHNOLOGIES®

Innovative Technology
for a Connected World



Innovative **Technology**
for a **Connected** World

About Laird Technologies

Laird Technologies designs and manufactures customized, performance-critical products for wireless and other advanced electronics applications.

The company is a global market leader in the design and supply of electromagnetic interference (EMI) shielding, thermal management products, mechanical actuation systems, signal integrity components, and wireless antennae solutions, as well as radio frequency (RF) modules and systems.

Laird Technologies partners with its customers to customize product solutions for applications in many industries including:

- Telecommunications
- Mobile Communications
- Network Equipment
- Automotive
- Industrial & Instrumentation
- Aerospace
- Defense
- Medical
- Consumer Electronics
- Food & Beverage

Laird Technologies offers customers unique product solutions, dedication to research and development, as well as a seamless network of manufacturing and customer support facilities across the globe.

A Brief Introduction to Thermoelectrics

Thermal management of electronic components and systems is critically important and more challenging than ever. Power densities continue to increase, while product form factors continue to shrink.

Engineers must now consider thermal management technologies and their applications early in the product design process. Simple thermal management solutions, such as adding a fan or heat sink, are no longer typically viable to meet required performance and reliability specifications.

In today's complex operating environment, thermoelectrics are required to provide precise cooling and heating in a variety of modular platforms including air conditioning, liquids, and direct contact designs.



Customized Solutions

Laird Technologies partners with engineers to customize the right solution for their specific application challenges. Known for its exceptional engineering expertise, the company conducts in-depth thermal design studies via thermal modeling, analysis, and design to ensure accurate evaluation of customer requirements.

Whether you need thermoelectric modules, commercial off-the-shelf or customized thermoelectric assemblies, Laird Technologies implements customized solutions from concept and prototype, to feasibility test and performance, to final production.

Why do it yourself?

Due to the increasing complexities of thermal management and the constant pressure to produce more products at a faster rate, companies rely on external, specialized thermal management expertise.

Laird Technologies is your thermal management partner to determine the best solution for your design challenge. The company's expertise positively changes product design to deliver slimmer form factors, lower costs, and more efficient thermal management. Whether you require the re-design of existing products or initial design, analysis and test of new products, Laird Technologies delivers global network support.

Benefits of Using Thermoelectrics

Thermoelectrics are the only effective solution for many thermal management applications:

- Precise temperature control with tolerances of +/- 0.1°C achieved under steady state conditions
- DC operation with reverse polarity for heating and cooling in thermal cycling applications
- Rapid cool down below ambient temperatures
- Tight geometric space constraints and low weight requirements
- Reliable solid-state operation with no sound or vibration (lifetimes of more than 200,000 hours)
- Large temperature differentials, $\Delta T > 123^{\circ}\text{C}$, with multi-stage cascade product line
- Power generation from waste heat—patented ThermoTEC™ is operational up to 225°C
- Virtually no electrical noise
- Environmentally friendly, no CFC refrigerants
- Low maintenance, easy to repair

Thermoelectric Applications

Whether cooling a single component or an entire cabinet, Laird Technologies provides robust units for outdoor applications and compact coolers for components in a wide array of other applications.

Telecommunications

Thermoelectrics remove heat from electronic components and stabilize sensitive temperature controls.

- Telecom enclosures
- Laser diodes
- Pump lasers
- Process fluids
- Passive optical equipment
- And more

Medical

A wide range of small- and medium-size units handle most applications requiring temperature regulation and stabilization with high precision.

- Analytical instruments
- Medical lasers
- Laboratory equipment
- Clinical diagnostic systems
- MRIs
- And more

Automotive

Coolers are specially designed for rapid content cooling. They offer solid-state technology, dependable performance, and are insensitive to vibration – without CFCs, liquid chemicals or moving parts.

- Ventilation systems
- Refrigeration boxes
- Cooling cabinets

Industrial & Instrumentation

Thermoelectrics have limitless potential, enduring excessive hot/cold temperature extremes, corrosive dampness, shocks, and vibrations. Solid-state technology allows these units to deliver dependable performance by managing thermal cycling with absolute accuracy.

- Elevator air ventilation systems
- Digital color printing presses
- Thermal imaging equipment
- Laser systems
- Leak detectors
- And more

Food & Beverage

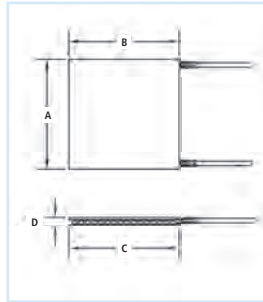
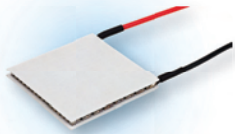
Temperature maintenance in this industry is crucial in maintaining product freshness from the production line to the consumer.

- Beverage coolers
- Small refrigerators
- Portable food containers
- And more

Thermoelectric MODULES

CP Series

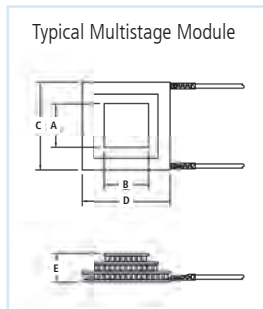
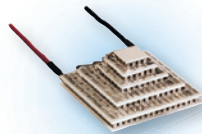
- Low cost, high performance
- Designed for higher current, larger heat-pumping applications
- Standard for consumer products and industrial cooling
- Ideal for instrumentation, consumer applications, commercial, and military applications



PART NO.	Th=25°C				N	DIMENSIONS (mm)			
	QMAX ⁽¹⁾ (WATTS)	IMAX (AMPS)	VMAX (VOLTS)	ΔTMAX (°C)		A	B	C	D ⁽²⁾
CP08,31,06,L1,W4.5	4.4	2.1	3.8	67	31	12	12	12	3.4
CP10,31,08,L1,W4.5	5.3	2.5	3.8	67	31	15	15	15	4
CP10,31,05,L1,W4.5	8.2	3.9	3.8	67	31	15	15	15	3.2
CP08,63,06,L1,W4.5	9	2.1	7.6	67	63	12	25	12	3.4
CP10,63,06,L1,W4.5	12.7	3	7.6	67	63	15	30	15	3.6
CP10,71,06,L,W4.5	14.4	3	8.6	67	71	23	23	23	3.6
CP10,63,05,L1,W4.5	16.6	3.9	7.6	67	63	15	30	15	3.2
CP08,127,06,L1,W4.5	18.1	2.1	15.4	67	127	25	25	25	3.4
CP14,35,045,L1,W4.5	19	8.5	4.2	65	35	15	30	15	3.3
CP10,127,08,L1,W4.5	21.4	2.5	15.4	67	127	30	30	30	4
CP10,127,06,L1,W4.5	25.7	3	15.4	67	127	30	30	30	3.6
CP14,71,06,L1,W4.5	28.7	6	8.6	67	71	30	30	30	3.8
CP10,127,05,L1,W4.5	33.4	3.9	15.4	67	127	30	30	30	3.2
CP14,71,045,L1,W4.5	38.5	8.5	8.6	65	71	30	30	30	3.3
CP14,127,06,L1,W4.5	51.4	6	15.4	67	127	40	40	40	3.8

Multi-stage

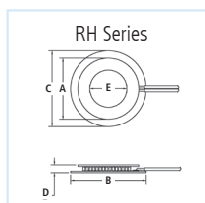
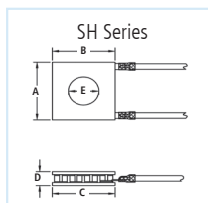
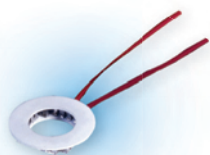
- Ideal for large temperature differentials (ΔT) up to 123°C
- Standard designs meet most multi-stage requirements
- Custom designs available to meet any multi-stage application



PART NO.	Th=25°C				DIMENSIONS (mm)				
	ΔTMAX (°C)	QMAX ⁽¹⁾ (WATTS)	IMAX (AMPS)	VMAX (VOLTS)	A	B	C	D	E ⁽²⁾
MS2,010,06,06,11,11,11,W8	92	0.35	1.1	0.9	3.2	3.2	3.9	3.9	4.2
MS2,024,06,06,11,11,11,W8	92	0.81	1.1	2.2	4.1	4.1	6.1	6.1	4.6
MS2,049,10,10,15,15,11,W8	87	3.4	2.1	3.8	11.5	11.5	15	15	6.6
MS2,049,14,14,15,15,11,W8	87	6.6	4.0	3.8	15	15	20	20	7.2
MS2,107,10,10,12,12,11,W8	89	9.2	3	9.2	22.6	22.6	22.6	22.6	6.25
MS2,190,10,10,12,12,11,W8	87	16.4	2.8	15.7	30	30	30	30	6.5
MS2,192,14,20,11,18,11,W8	87	39.9	6.7	15.6	40	40	40	40	8.1
MS2,192,14,20,15,25,11,W8	88	27.3	4.4	16	40	40	40	40	8.1
MS3,070,20,25,11,W8	118	3	6.5	6.5	14	8	36	36	16
MS3,119,14,15,11,W8	100	7.5	3.9	8	15	15	30	30	10.4
MS3,119,20,15,11,W8	100	14.9	8	8.2	22	22	44	44	12.9
MS3,231,10,15,11,W8	104	6.9	1.9	15.5	15	15	30	30	9.5
MS4,115,14,15,11,W8	122	2.6	3.5	7.6	14.5	4.5	33	24	13.8
MS4,129,10,15,11,W8	115	1.9	1.8	8.2	8	8	23	23	12.5
MS5,257,10,15,11,W8	123	2	1.5	14.5	8	8	30	30	15.4

Center Hole

- Features center hole for transmission of light, wires, probes or other hardware through the thermoelectric component
- Round or square configurations available



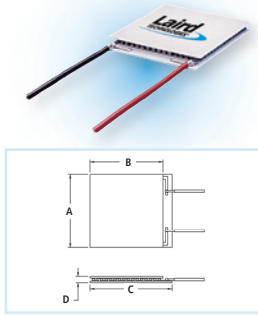
PART NO.	Th=25°C				N	DIMENSIONS (mm)				
	QMAX ⁽¹⁾ (WATTS)	IMAX (AMPS)	VMAX (VOLTS)	ΔTMAX (°C)		A	B	C	D ⁽²⁾	E
RH14,14,10,L1,W4.5	3.7	3.9	1.7	68	14	26	26	26	4.7	14.0
RH14,14,06,L1,W4.5	5.7	6.0	1.7	67	14	26	26	26	3.8	14.0
RH14,32,06,L1,W4.5	12.9	6.0	3.9	67	32	44	55	55	3.8	27.0
SH10,23,06,L1,W4.5	4.7	3.0	2.8	67	23	15	15	15	3.6	7.2
SH08,28,05,L1,W4.5	4.9	2.6	3.9	67	28	14.7	10.3	14.7	3.1	4.4
SH10,125,05,L1,W4.5	32.9	3.9	15.2	67	125	30	30	30	3.2	3.6
SH14,125,10,L1,W4.5	32.9	3.9	15.2	68	125	40	40	40	4.7	4.7
SH14,125,06,L1,W4.5	50.7	6.0	15.2	67	125	40	40	40	3.8	4.7
SH14,125,045,L1,W4.5	67.7	8.5	15.2	65	125	40	40	40	3.3	4.7

Notes: 1) QMax rated value at ΔT = 0°, Imax and Vmax, Th = 25°C; 2) Thickness for non-metallized versions only. All modules are lead-free. For wiring options contact Laird Technologies.



PolarTEC™

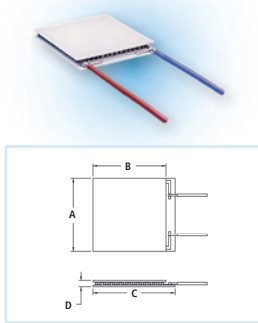
- Porch-style ceramic for increased heat dissipation
- Strong porch-style lead attachments
- Full range of size, power, and cooling capacities



PART NO.	Th=25°C				N	DIMENSIONS (mm)				WIRE (152mm)
	QMAX ⁽¹⁾ (WATTS)	IMAX (AMPS)	VMAX (VOLTS)	ΔTMAX (°C)		A	B	C	D	
PT6,7,F2,3030,TA,W6	29	6.0	8.1	65	71	30	30	34	3.8	18 AWG
PT4,12,F2,3030,TA,W6	33	3.9	14.4	65	127	30	30	34	3.2	24 AWG
PT4,12,F2,4040,TA,W6	32	3.7	14.4	67	127	40	40	44	4.1	18 AWG
PT6,12,F2,4040,TA,W6	52	6.0	14.4	65	127	40	40	44	3.8	18 AWG
PT8,12,F2,4040,TA,W6	72	8.5	14.4	64	127	40	40	44	3.3	18 AWG

UltraTEC™

- High heat-pumping capacity within small surface area
- High efficiency
- Strong, porch-style lead attachment
- Increased temperature differences (ΔT)
- Large hot side ceramic for extra heat dissipation



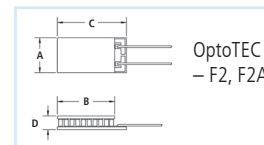
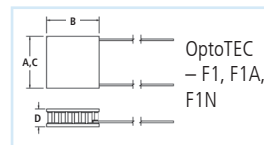
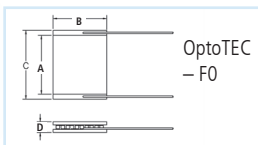
PART NO.	Th=25°C				N	DIMENSIONS (mm)				WIRE (152mm)
	QMAX ⁽¹⁾ (WATTS)	IMAX (AMPS)	VMAX (VOLTS)	ΔTMAX (°C)		A	B	C	D ⁽²⁾	
UT8,12,F2,3030,TA,W6	69	7.9	14.4	67	127	30	30	34	2.6	20 AWG
UT11,12,F2,3030,TA,W6	95	11.0	14.4	67	127	30	30	34	2.4	22 AWG
UT15,12,F2,4040,TA,W6	126	14.6	14.4	67	127	40	40	44	2.8	20 AWG

OptoTEC™

- Pb-free construction solders up to 271°C; pre-tinning available for packaging temperatures ranging from 93°C - 232°C
- Aluminum Nitride, Alumina or Beryllia
- Custom sizes, power densities, and ceramic patterns
- Wire bondable posts, metallized pads, and wires

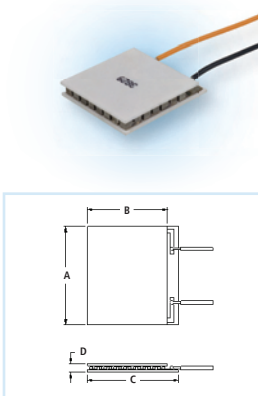
INTERNAL SOLDERING TEMP.	PART NO.	Th=25°C					Th=75°C					DIMENSIONS (mm)										
		QMAX ⁽¹⁾	IMAX	VMAX	ΔTMAX (°C)			QMAX ⁽¹⁾	VMAX	ΔTMAX (°C)			N	A	B	C	D ⁽²⁾					
					OT	ET	HOT			OT	ET	HOT										
138	232	271	OT	-	-	08,04,F0,0203,11,W2.25	0.22	0.8	0.5	67	-	-	0.24	0.57	84	-	-	4	1.8	3.4	3.4	2.4
OT	-	-	08,08,F0,0305,11,W2.25	0.44	0.8	0.9	67	-	-	0.49	1.12	84	-	-	8	3.3	3.3	4.9	2.4			
OT	-	-	08,18,F2,0505,11,W2.25	0.97	0.8	2.2	67	-	-	1.09	2.59	84	-	-	18	5	5	6.7	2.4			
OT	-	-	12,12,F0,0406,11,W2.25	0.97	1.2	1.5	67	-	-	1.09	1.72	84	-	-	12	4.2	6.2	6.2	2.7			
OT	-	HOT	12,18,F2A,0606,11,W2.25	1.46	1.2	2.1	67	-	64	1.72	2.50	84	-	81	18	6.0	6.2	7.2	2.7			
OT	-	-	08,32,F2,0707,11,W2.25	1.72	0.8	3.9	67	-	-	1.95	4.60	84	-	-	32	6.6	6.6	8.3	2.4			
OT	-	-	15,30,F2A,0610,11,W2.25	3.03	1.5	3.6	67	-	-	3.50	4.2	84	-	-	30	6.2	10.3	12.3	2.1			
OT	-	-	08,66,F0,1009,11,W2.25	3.60	0.8	7.9	67	-	-	4.4	9.2	84	-	-	66	9.8	8.9	11.4	2.4			
OT	ET	-	20,30,F2A,0610,11,W2.25	4.0	2.0	3.6	67	67	-	4.7	4.2	84	84	-	30	6.2	10.3	12.3	1.8			
-	-	HOT	20,31,F2A,0909,11,W2.25	4.2	2.0	3.5	-	-	64	4.7	4.5	-	-	81	31	8.8	8.8	11.0	2.2			
-	ET	-	20,31,F1A,0909,11,W2.25	4.2	2.0	3.5	-	67	-	4.7	4.5	-	84	-	31	8.8	8.8	8.8	2.2			
-	ET	-	19,35,F1N,0612,11,W2.25	4.64	1.9	4.2	-	65	-	5.28	4.9	-	81	-	35	6.0	12.2	6.0	1.65*			
-	-	HOT	12,65,F2A,1312,11,W2.25	5.34	1.2	7.8	-	-	64	5.9	9.3	-	81	65	13.2	12.1	13.2	2.7				
OT	-	-	15,66,F0,1211,11,W2.25	6.7	1.5	8.0	67	-	-	7.5	9.5	84	-	-	66	12.3	11.3	14.4	2.4			
-	-	HOT	20,65,F2A,1312,11,W2.25	8.76	2.0	7.8	-	-	64	9.90	9.3	-	81	65	13.2	12.1	13.2	2.2				
OT	-	-	20,66,F0,1211,11,W2.25	8.80	2.0	7.8	67	-	-	10.0	9.5	84	-	-	66	12.1	11.1	14.2	2.5			

* Metallized



ThermaTEC™

- High-temperature cooling
- Unique patented technology works up to +225°C
- Full range of size, power, and cooling capacities
- Superior cycling capacity
- Solid-state reliability
- Strong, porch-style lead attachment
- Generates power from waste heat



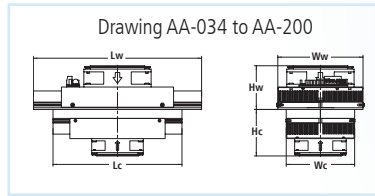
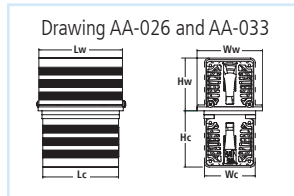
PART NO.	Th=25°C				N	DIMENSIONS (mm)			
	QMAX ⁽¹⁾ (WATTS)	IMAX (AMPS)	VMAX (VOLTS)	ΔTMAX (°C)		A	B	C	D ⁽²⁾
HT4,6,F2,2143,TA,W6	16.0	3.7	7.2	64	63	21	38	43	4.1
HT4,7,F2,3030,TA,W6	18.0	3.7	8.1	67	71	30	30	34	4.1
HT2,12,F2,3030,TA,W6	20.0	2.3	14.4	63	127	30	30	34	3.6
HT9,3,F2,2525,11,TA,W6	20.0	9.6	3.6	66	31	25	25	29	4.9
HT3,12,F2,3030,TA,W6	24.0	2.8	14.4	63	127	30	30	34	3.2
HT4,12,F2,4040,TA,W6	32.0	3.7	14.4	64	127	40	40	44	4.1
HT4,12,F2,3030,TA,W6	33.0	3.9	14.4	63	127	30	30	34	3.2
HT8,7,F2,3030,TA,W6	39.0	8.5	8.1	63	71	30	30	34	3.3
HT6,12,F2,4040,TA,W6	51.0	6.0	14.4	63	127	40	40	44	3.6
HT8,12,F2,4040,TA,W6	72.0	8.5	14.4	63	127	40	40	44	3.3

Notes: 1) QMAX rated value at ΔT = 0°, Imax and Vmax, Th = 25°C; 2) Thickness for non-metallized versions only. All modules are lead-free. For wiring options contact Laird Technologies.

Thermoelectric ASSEMBLIES

Air-to-Air Systems (AA)

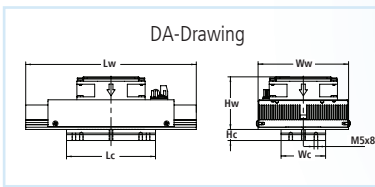
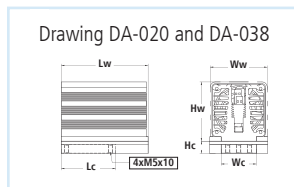
Air-to-Air Assemblies offer dependable, compact performance by cooling objects via convection. Heat is absorbed and dissipated by heat exchangers equipped with fans. Specifications apply to ambient temperature of 32°C and nominal voltage with tolerances ±10%.



PART NO.	COOLING POWER	CURRENT (A)	POWER INPUT (W)	AMBIENT MAX (°C)	WEIGHT (kg)	DIMENSIONS (mm)					
						Lw	Lc	Ww	Wc	Hw	Hc
AA-019-12-22-00-00	20	2.3	28	52	0.3	80	60	60	40	63	38
AA-024-12-22-00-00	25	2.4	29	51	0.6	100	80	80	60	63	55
AA-026-12-22-00-00	25	3.7	44	39	1.0	107	97	84	65	72	67
AA-033-12-22-00-00	32	3.7	44	48	1.4	180	97	84	65	71	67
AA-034-12-22-00-00	33	3.5	42	49	0.9	120	100	100	80	64	57
AA-040-12-22-00-00	41	6.3	76	48	1.8	160	120	122	102	71	76
AA-040-24-22-00-00	39	2.6	62	52	1.8	160	120	122	102	71	76
AAC050-24-22-00-00	49	4.7	113	47	2.7	230	180	122	102	71	80
AA-060-12-22-00-00	58	6.2	74	51	2.5	230	180	122	102	71	81
AA-060-24-22-00-00	58	3.1	74	51	2.5	230	180	122	102	71	81
AA-070-24-22-00-00	71	3.8	91	48	2.5	230	180	122	102	71	86
AA-100-24-22-00-00	102	5.6	134	49	4.0	300	230	152	122	78	83
AA-150-24-22-00-00	143	7.9	190	48	4.1	300	250	180	152	84	83
AA-200-24-22-00-00	193	11.3	271	46	7.0	400	350	180	152	89	89
AA-200-48-22-00-00	193	5.7	271	46	7.0	400	350	180	152	89	89

Direct-to-Air Systems (DA)

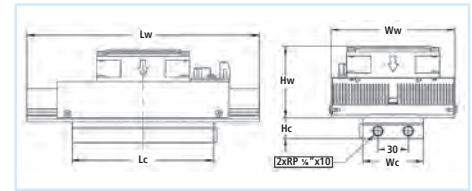
Direct-to-Air Assemblies offer dependable, compact performance by cooling objects via conduction. Heat is absorbed through a cold plate, pumping the heat through the TEM and dissipating it into the air through a heat sink. Specifications apply to an ambient temperature of 32°C and nominal voltage with tolerances ±10%.



PART NO.	COOLING POWER	CURRENT (A)	POWER INPUT (W)	AMBIENT MAX (°C)	WEIGHT (kg)	DIMENSIONS (mm)					
						Lw	Lc	Ww	Wc	Hw	Hc
DA-014-12-02-00-00	12	1.8	22	44	0.2	60	50	40	30	42	11
DA-020-12-02-00-00	19	2.7	32	44	0.6	97	62	65	40	68	14
DA-024-12-02-00-00	24	2.4	29	48	0.3	80	60	60	40	56	13
DA-034-12-02-00-00	34	2.6	31	46	0.5	100	60	80	40	58	14
DAC035-12-02-00-00	31	4.8	58	54	1.2	160	60	122	60	71	20
DA-038-12-02-00-00	38	3.6	43	43	1.2	180	62	65	40	67	14
DA-044-12-02-00-00	42	3.8	46	46	0.6	120	60	100	40	59	13
DA-045-12-02-00-00	48	6.1	73	46	1.2	160	60	122	60	71	15
DA-045-24-02-00-00	45	2.5	60	50	1.2	160	60	122	60	71	15
DAC060-24-02-00-00	58	4.6	110	48	1.8	230	120	122	60	71	20
DA-075-12-02-00-00	71	7.2	86	49	1.7	230	120	122	60	71	15
DA-075-24-02-00-00	71	3.7	89	49	1.7	230	120	122	60	71	15
DA-115-24-02-00-00	113	5.8	139	47	2.9	300	220	152	60	78	16
DA-135-24-02-00-00	135	6.9	166	42	2.9	300	220	152	60	78	16
DA-160-24-02-00-00	160	7.4	178	46	3.5	300	180	152	130	84	16

Liquid-to-Air Systems (LA)

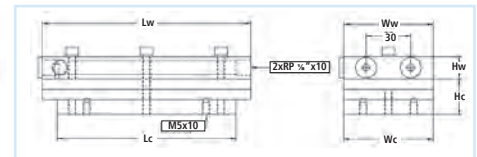
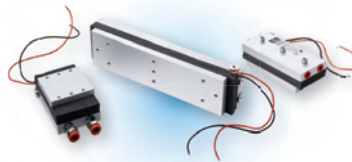
Liquid-to-Air Assemblies cool or heat liquids that flow through a heat exchanger. The liquid heat exchanger is designed for a re-circulating system, absorbs heat and pumps it through the TEM, where it dissipates into the outside environment through an air heat sink. Specifications apply to an ambient temperature of 32°C and nominal voltage with tolerances ±10%.



PART NO.	COOLING POWER	CURRENT (A)	POWER INPUT (W)	AMBIENT MAX (°C)	WEIGHT (kg)	DIMENSIONS (mm)					
						Lw	Lc	Ww	Wc	Hw	Hc
LA-024-12-02	24	2.4	29	48	0.4	80	80	60	60	64	15
LA-045-12-02	43	4.1	49	52	1.3	160	100	122	60	71	20
LA-075-24-02	71	3.7	89	49	1.8	230	140	122	60	71	20
LA-115-24-02	113	5.8	139	47	3.0	300	240	152	60	78	20
LA-160-24-02	160	7.4	178	46	3.5	300	200	152	136	84	20

Direct-to-Liquid Systems (DL)

Direct-to-Liquid Assemblies cool or heat objects attached directly to the cold plate. Heat is dissipated into a liquid heat exchanger on the hot side. The liquid circuit is normally a re-circulating type that requires a pump and additional liquid heat exchanger that dissipates heat into the ambient environment. Specifications apply to the warm side liquid temperature of 32°C and nominal voltage with tolerances ±10%.



PART NO.	COOLING POWER	CURRENT (A)	POWER INPUT (W)	AMBIENT MAX (°C)	WEIGHT (kg)	DIMENSIONS (mm)					
						Lw	Lc	Ww	Wc	Hw	Hc
DL-060-12-00	59	4.2	50	63	0.4	100	60	60	60	15	24
DL-120-24-00	122	4.2	101	62	0.7	140	120	60	60	15	24
DL-210-24-00	207	8.1	194	62	1.3	240	120	60	60	15	24

Temperature Controllers

From basic ON/OFF to advanced PC programmable, Laird Technologies offers a wide range of temperature controllers. In-house designed models (except panel mount) provide not only temperature control, but also system functions including separate fan control, low voltage protection, and alarm. Find the ideal controller for your application - regardless of whether it's a battery-operated system, outdoor electronics cabinet, wine cabinet or analytical instrument.

PART NO.	DESCRIPTION	REGULATION TYPE	TEMP RANGE (°C)	ACCURACY (°C)	INPUT VOLTAGE	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	BIDIRECTIONAL
PR-59	PC Programmable PID Controller	PWM	Sensor Dependent	±1.0°C, Sensor Dependent	12-30VDC	12-30VDC	15A	Yes
MTTC-1410	Thermoelectric Temperature Controller	PWM	-100 to 199.9	±1.0°C	115/220VAC	3, 7, 12, & 14 VDC (selectable)	10A	Yes
TC-18-QC-54	Control ON/OFF	ON/OFF	10 to 70	±1.0°C	10-60VDC	10-60VDC	8A	No

MRC Series Recirculating Thermoelectric Chillers

MRC chillers are designed to cool laser systems and other applications in the medical, photonics, and semiconductor industries. All models work with 100-240VAC input and come with a temperature controller and RS232 port. The control temp range is 2 to 40°C. Operating temp range is 4.4 to 45°C. (Heating option is available.)



MODEL	COOLING CAPACITY (W)	FLUID CAPACITY (mL)	DIMENSIONS H X W X D (cm)	WEIGHT (kg)	MAX FLOW RATE (LPM)
MRC 150	149	250	30.4 x 19.5 x 35.1	10.9	2.9
MRC 300	290	450	39.1 x 20.3 x 33.8	13.6	3.3

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Americas: +1.888.246.9050

Europe: +46.31.704.67.57

Asia: +86.755.2714.1166

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