

CATALOG

Thermal

Circuit Protection







Since its founding, Carling Technologies has continually forged a tradition of leadership in quality and product innovation.

There are few products that Carling Technologies hasn't turned "ON" and fewer industries that haven't turned to Carling for solutions.

With ISO and TS registered manufacturing facilities and technical sales offices worldwide, Carling ranks among the world's largest manufacturers of circuit breakers, switches, power distribution units, digital switching systems and electronic controls.



SWITCHES & **CONTROLS**

- Electronic
- Rotary
- Rocker
- Combination
- Toggle Pushbutton
- Battery
- Disconnect
- **PROTECTION** • Hydraulic-Magnetic
 - Thermal
 - GFCI / ELCI

CIRCUIT

• Fuse Links & Holders

CUSTOM SOLUTIONS

- PDU's
- Keypads
- Control Modules

MULTIPLEXED POWER SYSTEMS

- HMI Devices & I/O Modules
- · Programmable Displays
- Data Communication Interfaces
- Electrical Systems Monitoring

STRATEGIC MARKETS SERVED:







Marine



Telecom/Datacom

Exeter, UK



Renewable Energy

OTHER SERVED **INDUSTRIES:**























Security Systems

Test & Measurment

Jupiter, FL Matehuala, Mexico Zhongshan, China

HEADQUARTERS/MANUFACTURING FACILITIES:

COMPETITIVE ADVANTAGES[†]



Innovative & **Eco-Friendly Products**



Excellent Quality & Customer Service



Reliable & On-Time Delivery



Vertical Integration

WORLDWIDE **NUMBERS:**





ENGINEERS



DISTRIBUTORS



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HELPFUL TIP

Click on a product to go directly to that page number!

Thermal Circuit Protectors

This catalog features Carling Technologies' current line of thermal circuit protectors, from 3 to 60 amps, which offer reliable, cost effective circuit protection. Thermal circuit protectors utilize a bimetallic strip electrically in series with the circuit. The heat generated by the current during an overload deforms the bimetallic strip and trips the breaker. Thermal protectors have a significant advantage over fuses in that they can be reset after tripping. They can also be used as the main ON/OFF switch for the equipment being protected.

Typical Applications Include:

- Household Appliances
- Transportation
- MarinePower Strips

- Medical Equipment
- Audio Visual Equipment
- Power Supplies
- Exercise Equipment

Available Online are tools such as a **configurit**, **product selector** and **stock check**. Please visit **www.carlingtech.com** for the latest information on all our products.

Application Solution Engineers are readily available to assist you in selecting the appropriate product for your application. For further assistance, please email us at team2@carlingtech.com

Custom Design Solutions can be tailor-made for most any application using our extensive engineering resources. **Other Products** such as hydraulic-magnetic and ground fault circuit breakers, switches and miniature switches are also

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Selector Guide









CTB-Series

CMB-Series

CLB-Series

C1005B-Series

	CTB-Series	CMB-Series	CLB-Series	C1005B-Series
Poles	1	1	1	1
Actuator Style	rocker	pushbutton	pushbutton	rocker, lighted rocker
Max Current & Voltage Ratings	3 to 16A, 125-250VAC, 50VDC	3 to 20A, 125-250VAC, 32 VDC	3 to 60A, 125-250VAC, 32 VDC	7 to 16A, 125-250VAC, 32VDC
Max Interrupting Capacity	1000A	2500A@32VDC	2500A@32VDC	1000A
Available Circuits	series trip manual reset	series trip manual reset	series trip manual reset	series trip manual reset
Termination	.250" tab	.250" tab, .250" tab with 90° bend, screw terminal, screw terminal with 90° bend	.250" tab, .250" tab with 90° bend, screw terminal, screw terminal with 90° bend	.250" tab, solder lug
		threaded bushing, front panel snap-in	threaded bushing, front panel snap-in	front panel snap-in
Operating Temperate	-10°C to 60°C	-10°C to 60°C	-10°C to 60°C	-10°C to 65°C
Agency Approvals	UL, cUL, VDE, CE	UL, cUL, TUV, CE, ISO 8846 for ignition pro- tection / marine	UL, cUL, TUV, CE, ISO 8846 for ignition pro- tection / marine	UL, CUL, TUV





C1005B-Series

Thermal Circuit Breaker

PRODUCT WEBPAGE

request sample, configure part





The C1005B-Series offers the functionality of a switch and circuit breaker in a single compact package, which fits an industry standard .550 x 1.125 mounting hole. This combo device eliminates the need for both a switch and thermal circuit protector on customer panels. By using only this multi-purpose product, wiring and assembly costs are greatly reduced, while at the same time, valuable panel real estate is saved.

125-250 7-16 Pole VAC Max VDC Max Amps

Typical Applications

- Household Appliances
- On/Off-Highway
- Marine
- Power Strips and Supplies
- Medical Equipment
- Audio Visual Equipment
- Exercise Equipment · ROHS Complaint







C1005B Part Number Selection

1. SERIES

C1005B

2. ILLUMINATION

Non-Lighted Lighted

3. TERMINATION

Solder Lug

.250 Tab

4. CURRENT RATING (AMPERES)

07	7 amps	11	11 amps	15	15 amps	
08	8 amps	12	12 amps	16	16 amps	
09 10	9 amps 10 amps	13 14	13 amps 14 amps		,	

5. CONTACT MATERIAL 1

Silver Cad Oxide (switch), Silver plated copper (breaker)

.858

.921 [23.4]

6. BEZEL LEGEND IMPRINT

Black Bezel with white legend White Bezel with black legend Gray Bezel with black legend

7. ROCKER COLOR

Red Green

Blue

Note: RESET OFF Legend is standard.

8 LAMP VOLTAGE

Neon Lamp 125/250 VAC Non-lighted

. Silver cad oxide switch and breaker contacts are available as a special order. Specify 3 for selection 5

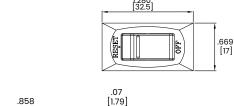
.550 [14]

[28]

Configure Complete Part Number >

Dimensional Specs

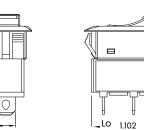


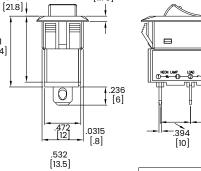


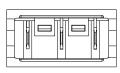


.248

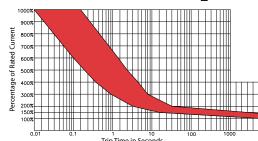
1.125 [28.6]







Time Delay



Overload	Trip Time
100%	No Trip
135%	Trip in 1 hr
200%	4.0 ~ 40 sec.
300%	0.9 ~ 8.0 sec.
400%	0.42 ~ 5.0 sec.
500%	0.25 ~ 3.0 sec.
600%	0.01 ~ 1.8 sec.

		_				
Trip Time Factor ¹						
-10 °C	x 1.70		30 ℃	x 0.90		
-5 °C	x 1.60		35 °C	x 0.85		
0 °C	x 1.50		40 °C	x 0.80		
5 ℃	x 1.40		45 °C	x 0.75		
10 °C	x 1.30		50 °C	x 0.70		
15 °C	x 1.20		55 °C	x 0.65		
20 °C	x 1.10		60 °C	x 0.60		
25 °C	x 1.00					

Notes: Trip Time factor is a guideline that indicates ambient temperature effect on trip times at various overload





CLB-Series

Thermal Circuit Breaker

PRODUCT WEBPAGE

request sample, configure part





The CLB-Series is a compact, single pole, push-to-reset family of thermal circuit breakers designed to protect equipment. Utilizing simple, precision design with few moving parts, these breakers offer cost effective, extremely reliable circuit protection with high resistance against shock and vibration.

3-60 Pole Amps

125-250

VAC Max

VDC Max

Typical Applications

Household Appliances

On/Off-Highway

- Marine
- Power Strips and Supplies
- Medical Equipment
- Exercise Equipment
- Audio Visual Equipment
- · ROHS Complaint







Part Number Selection

1. SERIES

CLB

2. RATING

03 04 05	3 amps 4 amps	10 12 13	10 amps 12 amps 13 amps	25 30 35	25 amps 30 amps 35 amps
06	5 amps 6 amps	15	15 amps	40	40 amps
07 08	7 amps 8 amps	18 20	18 amps 20 amps	50 60	50 amps ¹² 60 amps ¹²

3. VOLTAGE

125-250VAC / 32 VDC

4. MOUNTING HOLE see next page for diagram M11 1 M12 ² 12 Snap In Style ³ 3/8" 27 UNS ⁴ 00

5. BUSHING see next page for diagram

ME		PLASTIC
Α	Type A ⁶	C Type C ⁵
A B	Type B ¹⁶ Type J ⁸	D Type D ⁷ E Type E ⁸
J	Type J ⁸	E Type E ⁸

6. MOUNTING NUT 9 see next page for diagram

N	None	5	Type 5
1	Type 1	6	Type 6 ^{4, 14}
2	Type 2	7	Type 7 ⁴
3	Type 3 ¹⁷	8	Type 8 ⁴
3 4	Type 3 ''	8	туре в т

7. INDICATOR PLATE 9 see next page for diagram None Silver Printing on Black **Embossed Legend**

8. BUTTON Black

Type D

D

9.	TERMINAL	10,11,15 _{Se}	e next page f	or diagram		
Α	Type A	E	Type E	J	Type J	
В	Туре В	F	Type F	K	Type K	
С	Type C	G	Type G	R	Type R	

10 BUTTON MARKING (IF BLANK, NO MARKING) 13

Type H

White

But	Button Marking Orientation:				
lin	e 20 lo	ad			
03 04 05 06 07 08	3 amp 4 amp 5 amp 6 amp 7 amp 8 amp	10 12 13 15 18 20	10 amp 12 amp 13 amp 15 amp 18 amp 20 amp	25 30 35 40 50 60	25 amp 30 amp 35 amp 40 amp 50 amp 60 amp

Notes: Tolerance ±.005 [.127] unless otherwise specified.

- 6

- es: Tolerance ±.005 [.127] unless otherwise specified.
 Used with bushing A or B only.
 Used with bushing D only.
 Used with bushing E & J only.
 Used with bushing E & J only.
 Used with MI2 mounting hole only.
 Used with MI2 mounting hole only.
 Used with MI1 and MI2 mounting hole only.
 Used with To mounting hole 00 only.
 Used with 27 mounting hole only.
 All hardware available separately.
 Greater than 35 amp rating must use solder joint to connect wire to non-screw type terminals.
- screw type terminals.

 Terminals are .040 [1.0] thickness for ratings greater than 35 amps.

 Terminals are .315 [0.8] thickness is for ratings less than 35 amps.

 Available only with 10-24 unc. screw terms. (select type F, G, H, J only.) 11
- 12
- Ut, CUL only.

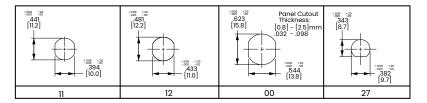
 Amp rating must match button marking
 (ex "20" will be marked on the button of the breaker)
 Thickness is 3.0 mm, 118 in.
- Screw terminals are 8-32 UNC

Used with M11 mounting hole only. Includes molded in "PRESS TO RESET" marking.

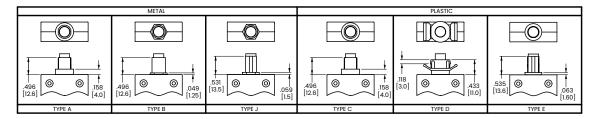
🕅 Configure Complete Part Number > 📗 🗇 Browse Standard Parts >

Ordering Scheme Diagrams

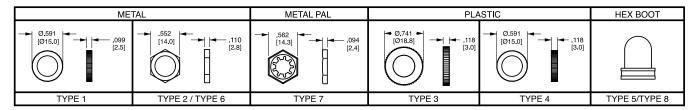
4. MOUNTING HOLE



5. BUSHING

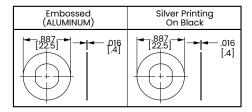


6. MOUNTING NUT



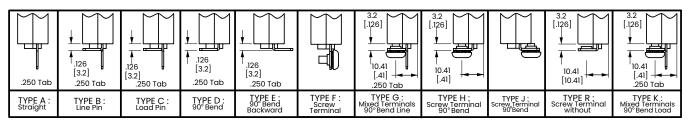
Type 5 is clear hex boot. Type 8 is black hex boot (available for bushings G, J & K only); Type 3 nut includes molded in "PRESS TO RESET" marking.

7. INDICATOR PLATE



All indicator plates are marked "Suppl. Prot. press to reset".

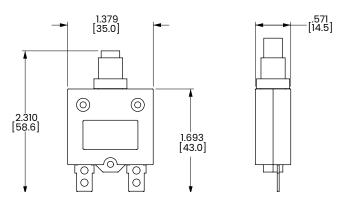
9. TERMINAL



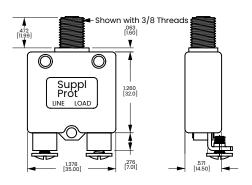
Dimensional Specs

inches [millimeters]

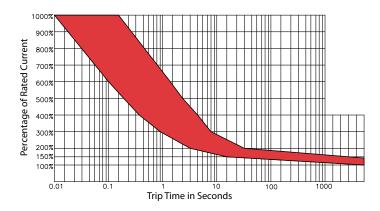
3-40A Construction



50 & 60A Construction



Time Delay



Overload	Trip Time
100%	No Trip
135%	Trip in 1 hr
200%	4.0 ~ 40 sec.
300%	0.9 ~ 8.0 sec.
400%	0.42 ~ 5.0 sec.
500%	0.25 ~ 3.0 sec.
600%	0.01 ~ 1.8 sec.

	Trip Time Factor ¹							
ı	-10 °C	x 1.70		30 °C	x 0.90			
	-5 °C	x 1.60		35 °C	x 0.85			
	0 °C	x 1.50		40 °C	x 0.80			
	5 °C	x 1.40		45 °C	x 0.75			
	10 °C	x 1.30		50 °C	x 0.70			
	15 °C	x 1.20		55 °C	x 0.65			
ı	20 °C	x 1.10		60 °C	x 0.60			
	25 °C	x 1.00						

otes:
 Trip Time factor is
 a guideline that
 indicates ambient
 temperature effect
 on trip times at
 various overload
 values.





CMB-Series

Thermal Circuit Breaker

PRODUCT WEBPAGE

request sample, configure part





The CMB-Series is a compact, single pole, push-toreset family of thermal circuit breakers designed to protect equipment. Utilizing simple, precision design with few moving parts, these breakers offer cost effective, extremely reliable circuit protection with high resistance against shock and vibration.

Pole

Amps

125-250

VDC Max VAC Max

Typical Applications

- Household Appliances
- On/Off-Highway
- Marine
- Power Strips and Supplies
- Medical Equipment
- Audio Visual Equipment
- Exercise Equipment
- · ROHS Complaint







Part Number Selection

1. SERIES

СМВ

2. RATING

03 04 05 06	3 amps 4 amps 5 amps	08 10 12	8 amps 10 amps 12 amps	15 16 20	15 amps 16 amps 20 amps	
06	6 amps	13	13 amps			
07	7 amps	14	14 amps			

3. VOLTAGE

125-250VAC / 32 VDC

4. MOUNTING HOLE see next page for diagram

11	MIII
12	M12 ²
00	Sṇap In Style ³
27	3/a" 27 HNS 15

3/8" 27 UNS (double flatted) 12

5. BUSHING see next page for diagram

PLA	STIC	METAL
С	Type C ⁴ Type D ⁴	J Type J ⁸
D	Type D ⁴	••
Ε	Type E ⁵	
G	Type G ⁸	
Н	Type G ⁸ Type H ⁶	
К	Type K ¹³	

6. MOUNTING NUT 7 see next page for diagram

N 1 2 3 4	None Type 1 Type 2 Type 3 ¹¹ Type 4	5 6 7 8	Type 5 Type 6 ¹⁴ Type 7 ⁹ Type 8 ⁹
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7. INDICATOR PLATE 9 see next page for diagram

N	None	В	Silver Printing on Black
Α	Embossed Legend		_

0. 1	DUTTON					
В	Black	R	Red	w	White	

9. TERMINAL 10,11,15 see next page for diagram

Α	Type A	E	Type E	J	Type J	
В	Type B	F	Type F	K	Type K	
С	Type C	G	Type G	R	Type R	
	Type D	Н	Týpe H		,,	

10 BUTTON MARKING (IF BLANK, NO MARKING) 13



03 04 05	3 amp 4 amp 5 amp	08 10 12	8 amp 10 amp 12 amp	15 16 20	15 amp 16 amp 20 amp
06	6 amp	13	13 amp		•
07	7 amp	14	14 amp		

- Notes: Tolerance ±.005 [.127] unless otherwise specified.

 1 Used with bushing C or D only.

 2 Used with H bushing E only.

 3 Used with bushing E only.

 4 Used with MI1 mounting hole only.

 5 Used with mounting hole 00 only.

 6 Used with M12 mounting hole only.

 7 All hardware available separately. Consult factory.

 8 Available with mounting hole 27 only.

 9 Available with G, J or K bushing only.

 10 Amp rating must match button marking (ex: 20 will be marked on the button of CMB-203-27G3N-W-A/20)

 11 Includes molded in "PRESS TO RESET" marking.

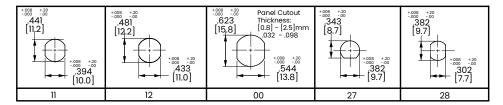
- Available with K bushing only.

 Available with mounting hole 28 only.
- Thickness is 3.0 mm, .118 in. Available with G or J bushing only.

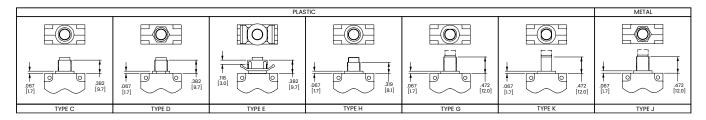
© Configure Complete Part Number > © Browse Standard Parts >

Ordering Scheme Diagrams

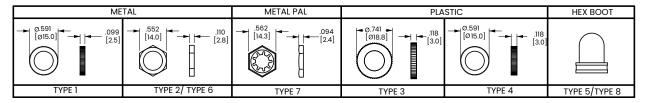
4. MOUNTING HOLE



5. BUSHING

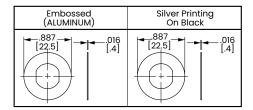


6. MOUNTING NUT



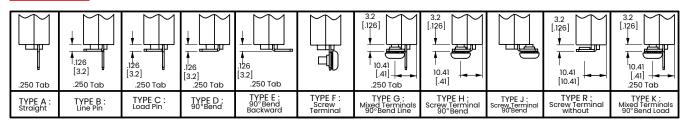
Type 5 is clear hex boot. Type 8 is black hex boot (available for bushings G, J & K only); Type 3 nut includes molded in "PRESS TO RESET" marking.

7. INDICATOR PLATE



All indicator plates are marked "Suppl. Prot. press to reset".

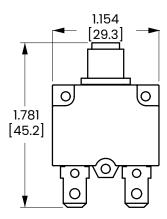
9. TERMINAL

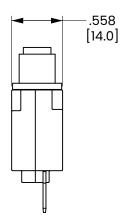


F,G,H,J terminals are 8-32 UNC

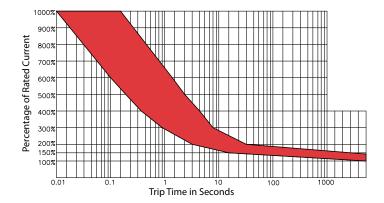
Dimensional Specs

inches [millimeters]





Time Delay



Overload	Trip Time
100%	No Trip
135%	Trip in 1 hr
200%	4.0 ~ 40 sec.
300%	0.9 ~ 8.0 sec.
400%	0.42 ~ 5.0 sec.
500%	0.25 ~ 3.0 sec.
600%	0.01 ~ 1.8 sec.

Trip Time Factor ¹					
-10 °C	x 1.70		30 °C	x 0.90	
-5 °C	x 1.60		35 °C	x 0.85	
0 ℃	x 1.50		40 °C	x 0.80	
5 °C	x 1.40		45 °C	x 0.75	
10 °C	x 1.30		50 °C	x 0.70	
15 °C	x 1.20		55 °C	x 0.65	
20 ℃	x 1.10		60 °C	x 0.60	
25 °C	x 1.00				

Notes:
Trip Time factor is a guideline that indicates ambient temperature effect on trip times at various overload values.





CTB-Series

Thermal Circuit Breaker

PRODUCT WEBPAGE

request sample, configure part





The CTB-Series is a compact, single pole, rocker actuated family of thermal circuit breakers designed to protect equipment. Utilizing simple, precision design with few moving parts, these breakers offer cost effective, extremely reliable circuit protection with high resistance against shock and vibration.

3-16

Amps

Pole

125-250

VAC Max

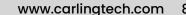
VDC Max

Typical Applications

Household Appliances

On/Off-Highway

- Marine
- Power Strips and Supplies
- Medical Equipment
- Exercise Equipment
- Audio Visual Equipment
- · ROHS Complaint



860.793.9281

sales@carlingtech.com







Sample Part Number Selection

1. SERIES

СТВ

2. BEZEL COLOR

Black

3. ROCKER COLOR 1

Black

4. RATING

03 04 05 06 07	4 amps 5 amps		8 amps 9 amps 10 amps 12 amps 13 amps	14 15 16	14 amps 15 amps 16 amps	
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5. PANEL THICKNESS

blank fits standard thickness of .032 - .062 fits .070 - .110 panel thickness

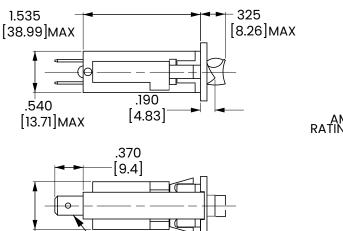
Additional colors available. Consult factory.

🛭 Configure Complete Part Number >

Browse Standard Parts >

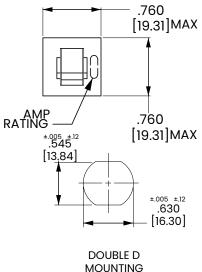
Dimensional Specs

inches [millimeters]



RECOMMENDED PANEL THICKNESS: 0.032 - 0.062 [0.81-1.57]

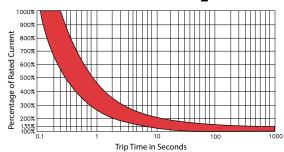
.250 x .032 [6.35 X .813]



.625

Tolerance ±.005 [.127] unless otherwise specified. Breaker must hold 100% of rated current and must trip at 150% and above, within the time limits shown in curve. Trip times specified at 25° ambient with no preloading.

Time Delay



Overload	Trip Time
100%	No Trip
135%	Trip in 1 hr
200%	2.2 ~ 15 sec.
300%	0.9 ~ 3.4 sec.
400%	0.57 ~ 1.6 sec.
500%	0.38 ~ 0.94 sec.
600%	0.27 ~ 0.76 sec.

Correction Factor ¹	
0 °C	x 0.85
10 °C	x 0.90
15 °C	x 0.925
18 °C	x 0.952
25 °C	x 1.00
32 °C	x 1.05
40 °C	x 1.15
50 °C	x 1.39
60 °C	x 1.49

To adjust the breaker rating for ambient temperature, multiply the breaker rating by the factor. ex: 5A rating x .850 = 4.25A. Select 4A rating.

^{*}Manufacturer reserves the right to change product specification without prior notice.

Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors or visit www.carlingtech.com/findarep.



About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With six ISO9001 and IATF16949 registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit www.carlingtech.com/company-profile.

To view all of Carling's environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications.



European Headquarters

Carling Technologies LTD

4 Airport Business Park, Exeter Airport, Clyst Honiton, Exeter, Devon, EX5 2UL, UK Phone: Int + 44 1392.364422 Email: Itd.sales@carlingtech.com

Worldwide Headquarters

Carling Technologies Inc.

60 Johnson Avenue, Plainville, CT 06062 USA Phone: 860.793.9281 Email: sales@carlingtech.com

Asia-Pacific Headquarters

Carling Technologies, Asia-Pacific LTD.,

Suite 1607, 16/F Tower 2, The Gateway, Harbour City, 25 Canton Road, Tsimshatsui, Kowloon, Hong Kong Phone: Int + 852-2737-2277 Email: sales@carlingtech.com.hk

WWW.CARLINGTECH.COM











