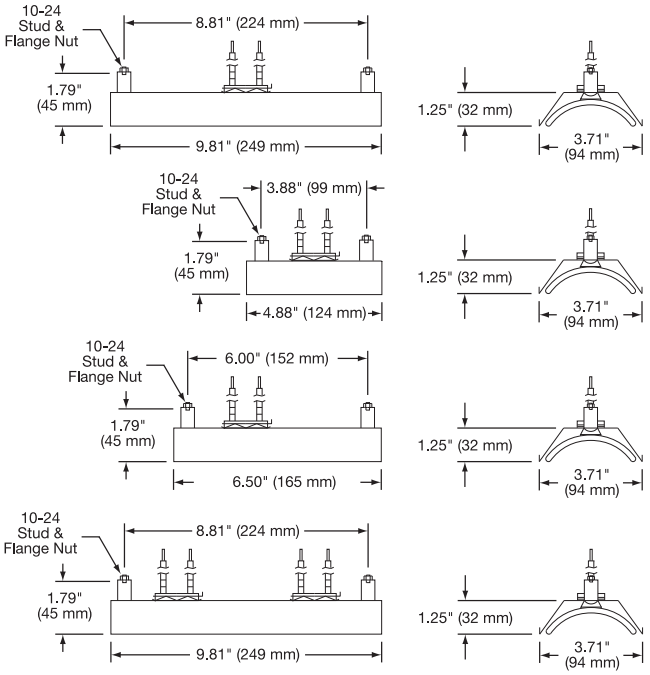
E-Mitter Reflectors

Stock Reflectors for CRB, CRN, CRC, CRZ and CRL E-Mitters

Reflectors for Ceramic E-Mitters

- *Designed to withstand bending and heat distortion*
- *Made from highly polished chrome steel or optional aluminized steel for extreme temperatures and harsh environments*
- *Will withstand high operating temperatures*
- *Available in three standard sizes; includes standoffs and hardware*
- *Easy installation into CRA linear structural housing assemblies (except CRK00032)*



For One CRB E-Mitter or One CRN E-Mitter

Part Number: CRK00007 (Chrome Steel)
Part Number: CRK00049 (Aluminized Steel)

For One CRC E-Mitter or One CRZ E-Mitter

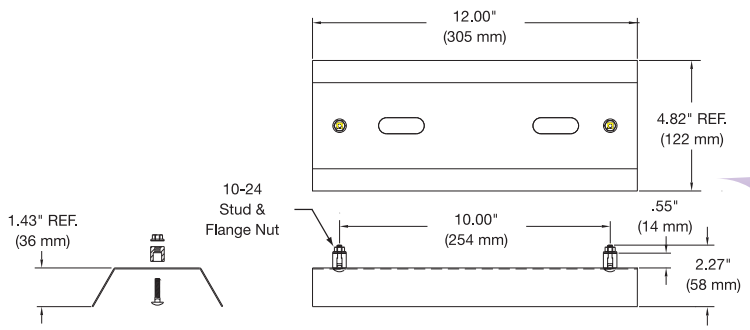
Part Number: CRK00006 (Chrome Steel)
Part Number: CRK00035 (Aluminized Steel)

For One CRM E-Mitter

Part Number: CRK00030 (Chrome Steel)
Part Number: CRK00074 (Aluminized Steel)

For Two CRC E-Mitters or Two CRZ E-Mitters

Part Number: CRK00020 (Chrome Steel)
Part Number: CRK00043 (Aluminized Steel)



Note: Reflectors in drawings are shown with curved heater(s) for reference only.

For One CRL E-Mitter

Part Number: CRK00032 (Aluminized Steel)

All Items Available from Stock

Ceramic Twist-Loc Wire Connectors

Material: Porcelain rated 300°C, 300 Volt Max., Solid or Stranded wire

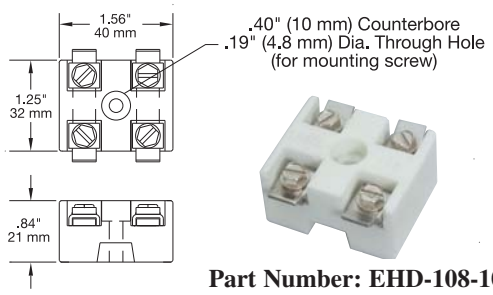
Part Number	Wire Range		Skirt Length (in)	Opening ID (in)	Outer Diameter (in)
EHD-114-102	(2) #22	(1) #18 & (1) #16	11/16	1/4	15/32
EHD-114-103	(2) #20	(2) #16	13/16	5/16	1/2
EHD-114-104	(2) #18	(2) #14	7/8	13/32	9/16
EHD-114-105	(1) #16 & (1) #14	1#14 & (2) #12	1-1/8	1/2	3/4

Standard Ceramic Terminal Block for Internal Wiring

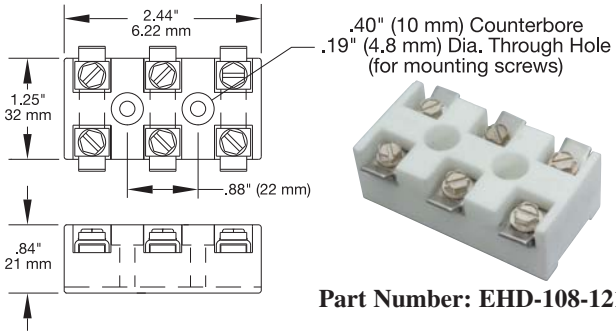
For internal connections within heater assemblies, CRA linear structural housings and ARA arrays.

Design Features

- *Maximum Voltage: 600 VAC*
- *Maximum Current: 20 Amps*
- *Maximum Temperature: 450°C/842°F*
- *AWG: 20-12 ga. wire*
- *Hardware: Stainless Steel*
- *Body Material: As Fired Steatite*



Part Number: EHD-108-101



Part Number: EHD-108-121

Ceramic Terminal Block (enclosed terminals)

Used for wiring of heater power and thermocouple wiring in high temperature locations

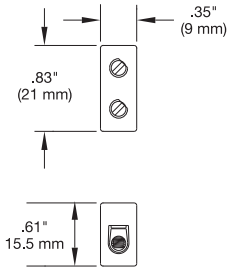
Design Features

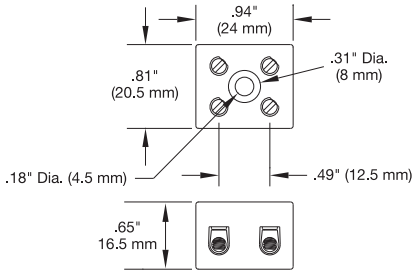
- *Rating: CE, VDE*
- *Maximum Voltage: 380 VAC*
- *Maximum Current: 30 Amps*
- *Body Material: Porcelain*
- *AWG: 26-16 stranded, 26-14 solid*
- *Maximum Temperature: 240°C/464°F*
- *Screw: M3, zinc plated steel, yellow chromated*

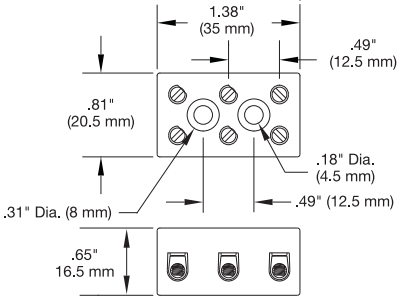
Part Number: EHD-108-116

Part Number: EHD-108-117

Part Number: EHD-108-118

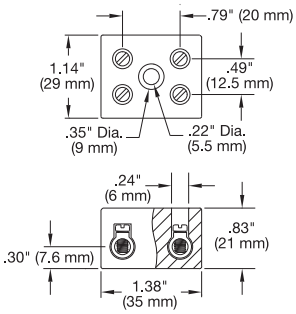


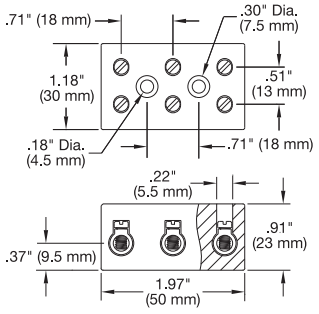




Design Features

- *Rating: UL*
- *Maximum Voltage: 600 VAC*
- *Maximum Current: 50 Amps*
- *Body Material: Porcelain*
- *AWG: 14-8 ga wire*
- *Screw: M4, zinc plated steel, yellow chromated*
- *Maximum Temperature: 240°C/464°F*





Part Number: EHD-108-114

Part Number: EHD-108-115

CONTINUED

Stock Ceramic Terminal Blocks

Heavy Duty High Temperature Ceramic Line Wiring Blocks (Exposed Terminals)

Design Features

- **Maximum Voltage:** 500 VAC
- **Maximum Current:** 44 Amp @ 104°F ambient
- **Maximum Temperature:** 240°C/464°F
- **Wire Gauge:** 18 to 8 ga.
- **Screw:** M5 (#10), zinc-plated steel, yellow chromated
- **Body Material:** Steatite

Additional Terminal Hardware

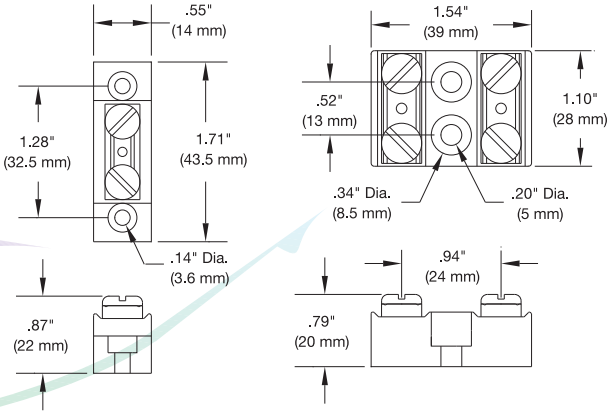
Stainless Steel Flat Washer Part Number: **WAS-118-108**

Spring Lock Washers Part Number: **WAS-109-101**

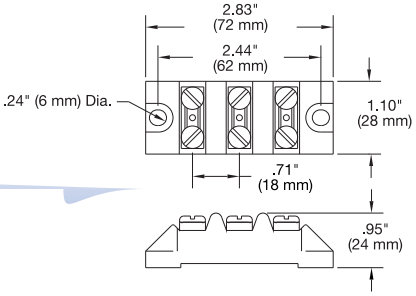
Used for interfacing heater assemblies, CRA housings and ARA arrays to external line wiring.

Part Number: EHD-108-106

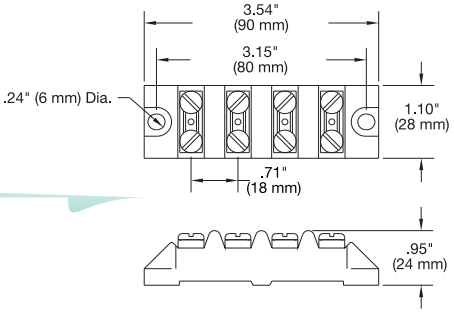
Part Number EHD-108-107



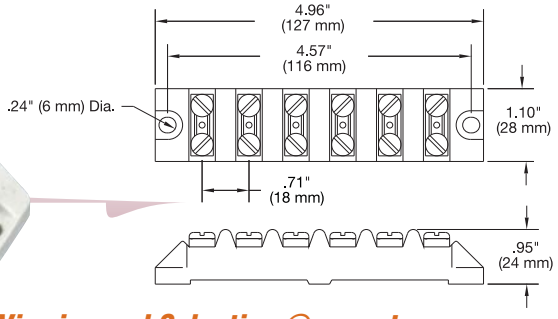
Part Number: EHD-108-108



Part Number: EHD-108-109



Part Number: EHD-108-105



All Items Available from Stock

Hi-Temp (900°F) Nickel Plated Steel Uninsulated Terminals

The following optional terminals are available for use with Ceramic E-Mitter heaters and for assembly wiring. (Ceramic E-Mitters come standard with Part Number TER-115-112 #8-10 Ni-Steel spade terminals.)

Terminal Type	Description	Usage	Part Number
Ring	#10 stud, 16-14 ga. wire	Misc. (Monel material)	TER-110-104
	#10 stud, 22-18 ga. wire	Heater leads	TER-110-110
	#10 stud, 12-10 ga. wire	Line Wiring of Assy.	TER-110-111
	#8 stud, 16-14 ga. wire	Internal CRA & ARA wiring	TER-109-104
	#8 stud, 22-18 ga. wire	Heater leads	TER-109-105*
	#8 stud, 12-10 ga. wire	Line wiring of Assy.	TER-109-106
Spade	#8-10 stud, 22-18 ga. wire	Heater leads (Standard)	TER-115-112*
	#8 stud, 16-14 ga. wire	Internal CRA & ARA wiring	TER-115-113
	#10 stud, 22-18 ga. wire	Misc.	TER-115-111
Straight	1/4" long Ni 200 Barrel Crimp	T/C or Heater leads	CON-101-101

All Items Available from Stock

* Standard sizes for heater leads to internal ceramic terminal blocks used in CRA housings and ARA arrays. Must be used with EHD-108-101 (2-pole) or EHD-108-121 (3-pole) standard terminal blocks.

High Temperature Stranded Lead Wiring Material

The following insulated wiring materials are available for heater lead modifications, internal bussing and the line input wiring of CRA housings and panels.

Part Number	Rating	Size & Conductor	Maximum Amperage	Usage
LDW-105-109	450°C, 600V	18 ga. Ni Clad Cu	12.3 @ 300°C (572°F)	Heater Lead Modifications
LDW-104-104	450°C, 600V	16 ga. Nickel	8.4 @ 300°C (572°F)	Misc.
LDW-103-108	450°C, 600V	14 ga. Ni Clad Cu	21.2 @ 300°C (572°F)	Standard for internal wiring of factory wired units
LDW-103-104	450°C, 600V	14 ga. Nickel	12.6 @ 300°C (572°F)	Misc.
LDW-102-106	450°C, 600V	12 ga. Ni Clad Cu	26.2 @ 300°C (572°F)	Panel zones & line input
LDW-101-102	450°C, 600V	10 ga. Ni Clad Cu	35.6 @ 300°C (572°F)	Panel zones & line input
LDW-105-111	250°C, 300V	18 ga. Ni Plated Cu	9.0 @ 200°C (392°F)	Heater Lead Modifications
LDW-104-102	250°C, 600V	16 ga. Ni Plated Cu	14.2 @ 200°C (392°F)	Misc.
LDW-103-103	250°C, 600V	14 ga. Ni Plated Cu	21.1 @ 200°C (392°F)	Internal panel wiring
LDW-102-101	250°C, 600V	12 ga. Ni Plated Cu	29.5 @ 200°C (392°F)	Panel zones & line input
LDW-101-101	250°C, 600V	10 ga. Ni Plated Cu	37.6 @ 200°C (392°F)	Panel zones & line input
WIR-109-101	750°C, 480V	18 ga. bare, Fe/Cr	10.0 @ 700°C (1292°F)	Heater lead modifications
CER-103-108	750°C, 480V	Ceramic beads*	N/A	Bare heater lead insulation

* Six (6) per inch required for use on WIR-109-101

For 450°C (842°F) rated wires amperage is derated over 300°C (572°F). Maximum ambient is 400°C (752°F). The 250°C (482°F) wires should not be used in ambients over 225°C (437°F). See amperage tables in Engineering Section 16 for more details on current carrying capacity of general wiring materials.

See page 15-2 for additional specifications.

Standard High Temperature Thermocouple Wiring Material

The following insulated wiring materials are available for heater T/C lead extensions, internal bussing and wiring of CRA housings and panels to external controllers.

Wire Part Number	Type	Wire Style	Insulation Color Code	Insulation Sleeving Part Number	Usage
TCW-106-106	K - Chromel P	20 ga. solid, bare	Yellow (+Pos)	SLV-110-109, 18 ga.	Heater lead modifications
TCW-107-103	K - Alumel	20 ga. solid, bare	Red (-Neg)	SLV-110-108, 18 ga.	
TCW-111-102	J - Iron	20 ga. solid, bare	White (+Pos)	SLV-110-107, 18 ga.	
TCW-109-102	J - Constantan	20 ga. solid, bare	Red (-Neg)	SLV-110-108, 18 ga.	
TCW-103-104	K - paired	20 ga. Duplex, solid	Yellow/Red	n/a, Insulated 2 conductor	Panel zones & input wiring
TCW-103-101	K - paired	20 ga. Duplex, stranded	Yellow/Red	n/a, Insulated 2 conductor	
TCW-101-110	J - paired	20 ga. Duplex, solid	White/Red	n/a, Insulated 2 conductor	
TCW-101-109	J - paired	20 ga. Duplex, stranded	White/Red	n/a, Insulated 2 conductor	

Duplex wires have color coded glass braid over each conductor within an outer braided fiberglass insulation jacket. Bare conductors are supplied without sleeving. Specify sleeving by part number if required when ordering.

Additional options and sizes are listed on page 14-102.

Mounting Accessories and Low Noise Thermocouple Option

One-Piece Mounting Clip (Standard)

Designed for heater mounting with 22 ga (.028) to 20 ga (.037) sheet metal.

Part Number SPR-103-102

Thinner or thicker materials require the Two-Piece Mounting Clip.

Standard mounting spring clip shipped with heaters

Two-Piece Wave Mounting Clip (Optional)

The two-piece wave spring clip and holding clip assembly is used for mounting heaters in materials thicker than 20 ga (.037) or thinner than 22 ga (.028)

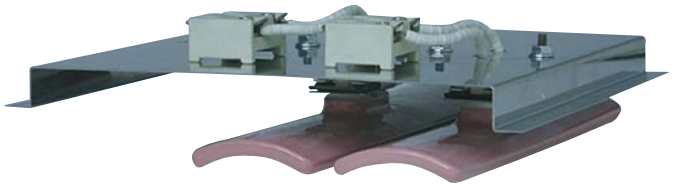
Part Number: CRK00008

All Items Available from Stock

Single Element Mounting Bracket

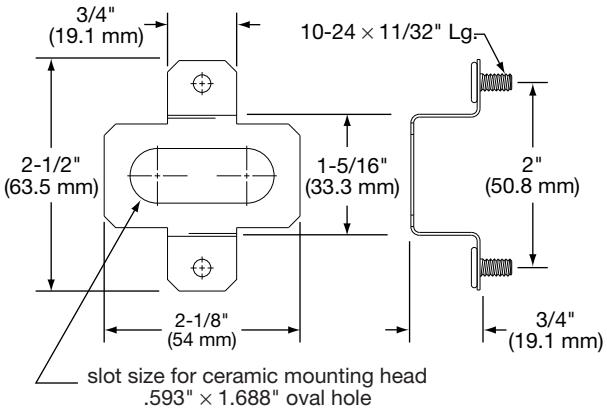
A convenient method for mounting individual E-Mitters to a flat surface or panel for spot heating applications

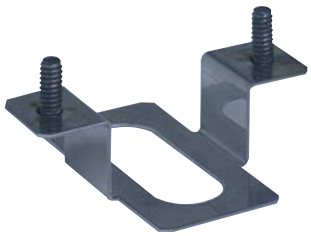
Part Number: CRK00018



The picture shows how the single element mounting bracket can be used to develop a panel array using Series CRB or CRC Ceramic E-Mitters or others with the same mounting head design.

Note the use of Part Number EHD-108-101 High Temperature Ceramic Terminal Blocks to connect the heater leads to the power leads and the thermocouples. High Temperature Ceramic Terminal Blocks can also be used for making thermocouple connections.





Part Number: CRK00018

Designed for use in the CRB, CRC, CRL, CRG and CRM solid curved and flat face style heaters. Low noise thermocouples can only be factory installed and must be specified at time of ordering.

Low Noise Thermocouple Option

Generally the standard thermocouple is acceptable for the majority of applications. Most instrumentation inputs have noise rejection sufficient to filter out unwanted 60 hz AC noise that the thermocouple picks up from being mounted close to the coil element for ideal temperature sensing.

For those applications where emf generated noise is a problem for the instrument, Tempco offers a low noise thermocouple solution. The low noise thermocouple option is designed to minimize the induced AC noise by using stainless steel overbraid on the high temperature fiberglass color-coded 24 GA solid leads as a ground shield and a ceramic insulator at the thermocouple junction.

Thermocouple Type	Termination	Lead Length (in)	Part Number
K	Straight Pigtails	8	TCP90342
K	Straight Pigtails	12	TCP90386
K	Straight Pigtails	24	TCP90336
K	Straight Pigtails	48	TCP90362
J	Straight Pigtails	12	TCP90422
J	Straight Pigtails	48	TCP90395