

## PC Board Stiffeners and Current Carrying Busses

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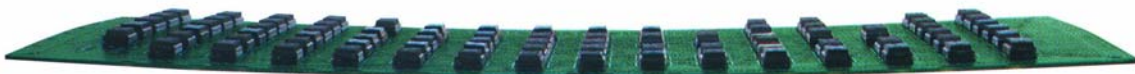
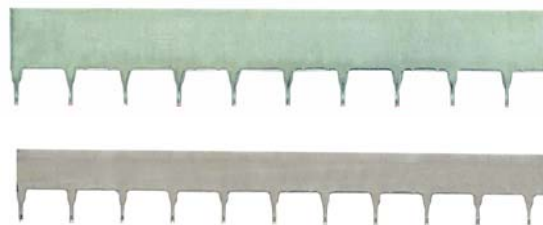
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## Standard Copper Rigid / Bus

### Benefits

- Rigidize PCBs during and after assembly
- One step installation with no hardware required.
- Protects PCBs from cracks on solder joints and PCB traces, decreasing vibration and shock damage.
- Can be used as ground and/or power distribution bus bars (up to 64 Amps) eliminating the need for heavy traces.
- Snap-in version available
- Available in any length and various heights.



Without Board Stiffener



With Board Stiffener

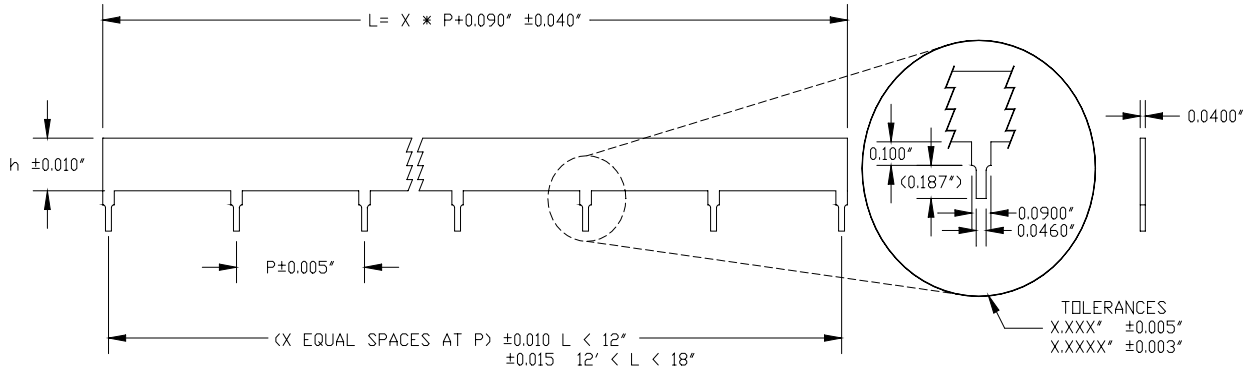
# Standard Copper Rigid Bus

<b>Specifications</b>	<b>Single Layer: Std (B), Snap-In (S) Two Layer: ( H)</b>		
	<b>B250 S250 H250</b>	<b>B375 S375 H375</b>	<b>B500 S500 H500</b>
<b>Body Height</b>	<b>0.250"</b>	<b>0.375"</b>	<b>0.500"</b>
<b>Resistivity /Inch at 25 ° C (milliohms )</b>	<b>0.07</b>	<b>0.06</b>	<b>0.035</b>
<b>Body Current Carrying Rating at 25 ° C</b>	<b>32 Amps</b>	<b>48 Amps</b>	<b>64 Amps</b>
<b>Maximum Body temperature rise from 25 ° C at 1.5 times the current rating</b>	<b>20° C</b>	<b>25° C</b>	<b>30° C</b>
<b>Pin Carrying Current rating at 25° C</b>	<b>11 Amps</b>		
<b>Maximum Pin temperature rise from 25° C at 1.5 times the current rating</b>	<b>20° C</b>		
<b>Recommended PCB Hole Size</b>	<b>.070" (1.78 mm)</b>		
<b>Recommended Solder Pad Size</b>	<b>0.110"- 0.120" (2.794 mm- 3.048 mm)</b>		
<b>Pin Strength</b>	<b>70 lbs</b>		
<b>Shoulder Strength</b>	<b>115 lbs</b>		
<b>Body Strength</b>	<b>840 lbs</b>		
<b>Material</b>	<b>Alloy 110 copper .040" (1.016 mm) thick full hard</b>		
<b>Finish</b>	<b>Electro tin plating per Mil-T-10272 (Body surface only, ends of body and tips of pins are not plated)</b>		
<b>Outer Insulation</b> (For two layer construction, optional for single layer)	<b>Electric Grade Epoxy Resin or Kapton HN</b>		
<b>Dielectric Strength (Outer Insulation)</b>	<b>Epoxy (300 V/mil) Kapton HN (5000 V/mil)</b>		
<b>Inner Insulation for two layer construction</b>	<b>Electric Grade Polyester Film</b>		
<b>Dielectric Strength (Inner Insulation)</b>	<b>2000 VAC /mil</b>		
<b>UL Flammability Rating</b>	<b>UL-94-VO</b>		
<b>High Frequency Vibration Mil Std 202F</b>	<b>Method 204D, Condition B (Limited to 5 GS)</b>		
<b>Random Vibration Mil Std 202F</b>	<b>Method 214A, Conditions I-E, for 30 min per axis</b>		
<b>Mechanical Shock Mil Std 202F</b>	<b>Method 214B, Condition A 50G, 11 ms, half-sine; 3 22blows per direction ,both directions of 3 axes (18 total shocks)</b>		

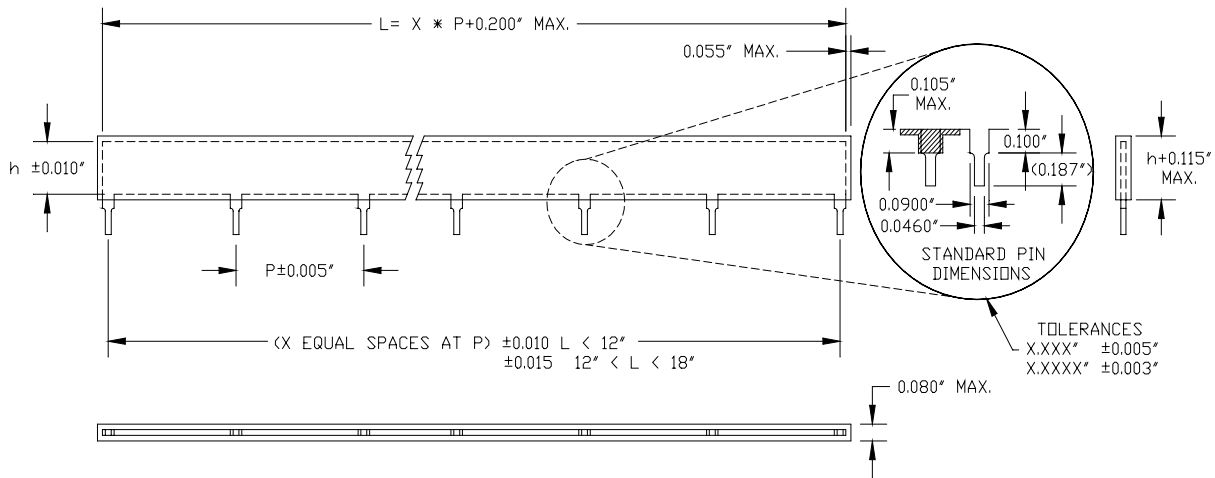
# Standard Copper Rigid Bus

## Part Drawings

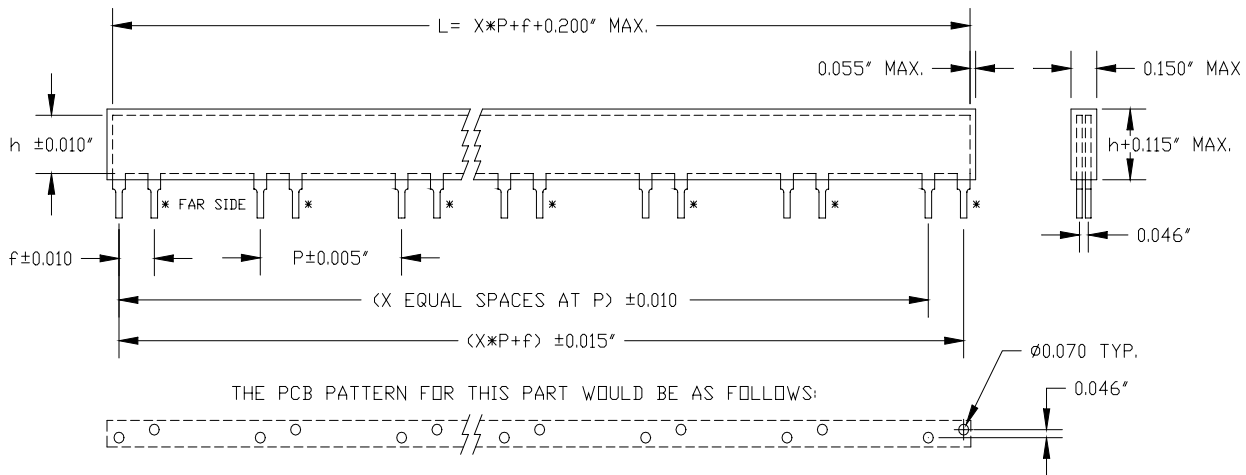
### Un-insulated Single Layer—Standard Rigid Bus



### Insulated Single Layer—Standard Rigid Bus



### 2-Layer Version (Power and Ground)—Standard Rigid Bus



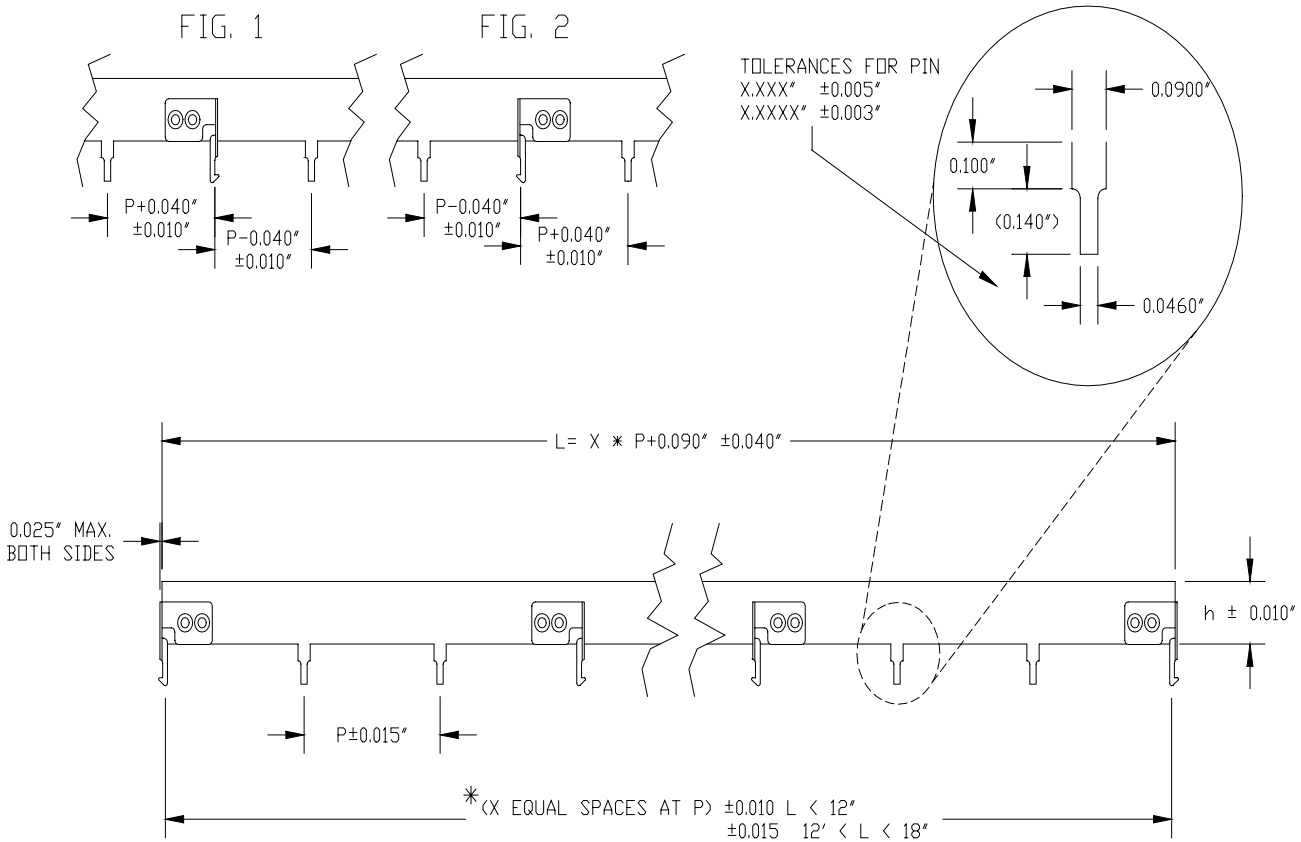
# Standard Copper Rigid Bus

## Snap-In Board Stiffener

The Snap-In Board Stiffener eliminates the need to clinch the pins. It consists of standard Board Stiffener with four spring-loaded pins added, which have a hook-shaped tip at the ends (see drawing below). When mounted onto the board, the spring loaded pins snap in and hold the board stiffener in a vertical position, perpendicular to the board.



### Part Drawing



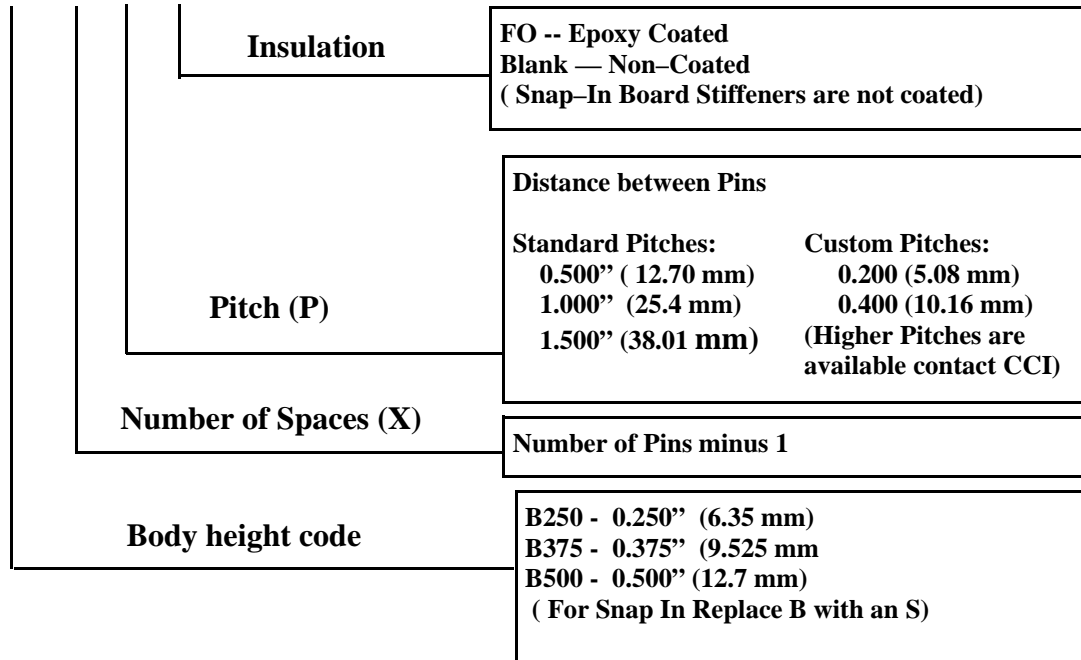
\* EXCEPT SPACES ADJACENT TO SPRINGS (SPACES DIMENSION SHOWN ON FIG. 1 AND 2)

# Standard Copper Rigid Bus

## Part Numbering and Ordering Information

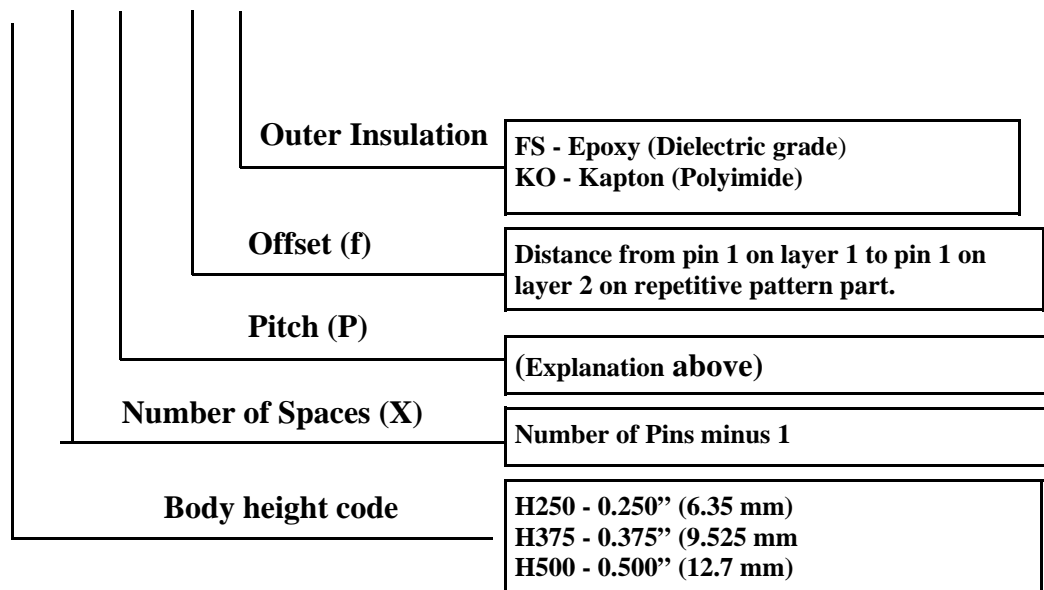
### Single Layer Board Stiffener or Current Carrying Bus

#### B250-7-1.0-FO



### Two Layer Rigid / Bus Bars

#### H250-7-1.0-.5-FS



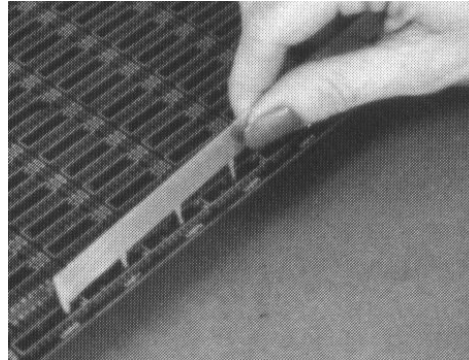
# Standard Copper Rigid Bus

## Selection and Installation Guidelines

### Std Rigid / Bus

The type of Rigid /Bus and location on the board will depend on the current requirements, size of the board and the degree of sagging, bowing or twisting of the board. Following are some general guidelines:

- If the Rigid /Bus will be carrying current, select the body width according to the current carrying capacity. (See Specifications Page 2)
- Place the Rigid /Bus as close as possible to the area you wish to rigidize.
- If the PCB is sagging, bowing or twisting in the center, locate the Rigid / Bus in the center of the PCB.
- In boards with excessive sagging, twisting or bowing, locate two Stiffeners, cutting the board into thirds. If needed add more Stiffeners.
- Select the tallest possible conductor body compatible with your design, and increase the maximum pin count to maximize rigidizing.
- If the board is sagging, bowing or twisting in the X and Y axis, locate at least one Stiffener per axis.



Insert the Rigid/Bus into the PCB.



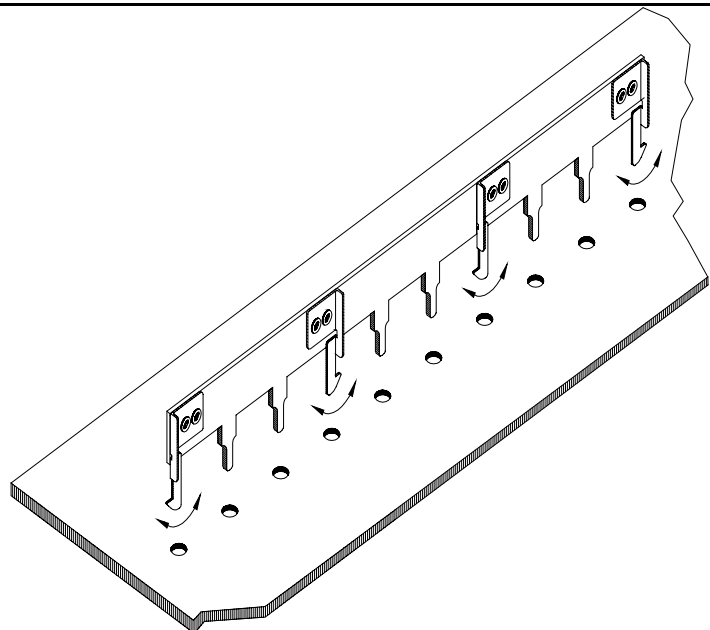
Clinch \* the pins on the bottom of the board. Alternate the clinch direction 180° along the length of the part.

\*CCI offers a clinching tool to simplify the clinching operation. You can order this tool or the manufacturing drawing directly from CCI.

### Snap-In Rigid / Bus Stiffener

Select the Snap-In Rigid /Bus Stiffener for those cases where you want mainly to provide Board Rigidity and where you want to eliminate the need of clinching the pins. Following are the recommended installation steps:

1. Raise the PCB from surface to a clearance of at least 0.250". Ensure that the board is steady and secure to prevent any sliding or movement caused by the insertion force.
2. Align the stiffener to the PCB holes where the stiffener will be inserted. Do not press stiffener yet.
3. **Start on one end**, press the first spring inward and continue to the next spring until all four pins are inserted.



# Brass Board Stiffeners

## Benefits

- “L” Profile construction provides enough mechanical support to keep the PC board flat or straight.
- Increases the current carrying capacity compared to standard power or ground traces.
- Thin construction acts as a space saver on the PC board.
- A cost saver. No secondary operations such as riveting, installation of screws, etc. are required. The stiffener is soldered simultaneously with other PC board components.
- Available in any length, any number of pins, and a broad selection of grid patterns.
- Choice of metal thickness.

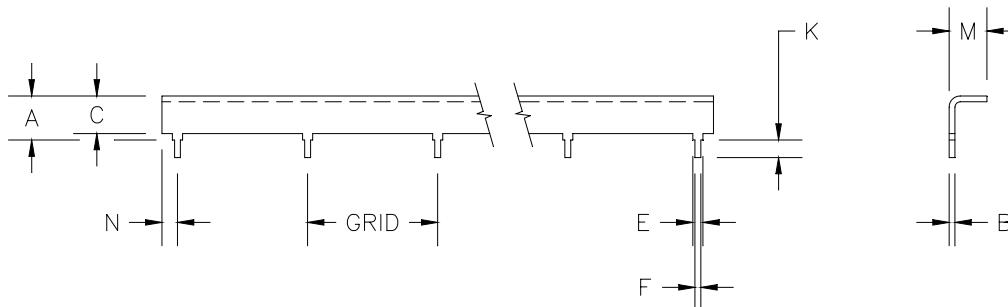


## Physical Specifications and Part Drawing

Material: Brass per QQ-B-613, half hard

Finish: Bright Tin plated per MIL-T-10727, Type 1, .000100” (2.54µm) minimum.

Available Grids: .250” (6.35mm), .500” (12.70mm), .700” (17.78mm), .750” (19.05mm), 1.000” (25.40mm), 1.250” \* (31.75mm), 1.400” (35.56mm), 1.500” (38.1mm) \* Grid 1.250” is available only for P/N B6254



Part Number	Dimensions							
	A	B	C	E	F	K	M	N
B6253	.34 (8.64)	.045 (1.14)	.29 (7.36)	.078 (1.98)	.045 (1.14)	.135 (.43)	.29 (7.36)	.12 (3.04)
B6254	.32 (8.13)	.020 (0.50)	.27 (6.86)	.085 (2.16)	.020 (0.50)	.175 (4.44)	.27 (6.86)	.12 (3.04)

Tolerances: .XXX +/- 0.010” (0.25 mm), .XX +/- 0.030” (0.76 mm)

## Ordering Information

For ordering, construct a part number to meet your requirements or submit a drawing or a sketch.

B6253	-	500	-	6	T
Basic Part Number		Grid		Number of Pins	Finish (Tin)



## Other Products Manufactured by Circuit Components, Inc.



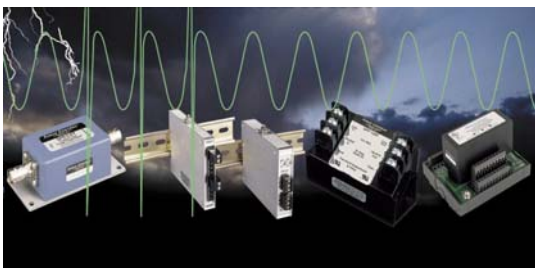
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