ELCON
PRODUCTS INTERNATIONAL COMPANY

CROWN EDGE™

Modular card edge style connector
for board-to-board power distribution

CROWN EDGE is a low-cost solution for board-to-board power using the card-edge connector concept. Offering a mix of power and signal connections, CROWN EDGE makes use of Elcon's high performance Crown contact technology configured to mate directly with a printed circuit board edge or — for higher currents — with a solid bus bar.

FEATURES

- Power, signal and mixed modules
- Power contacts UL recognized for 25A
- Low-cost power solution
- Versatile power arrangements
- Mates with .062" (1.6 mm) thickness card edge or bus bar tab
- Compliant press-fit tails
  (Consult Elcon for availability of solder tail terminations.)

APPLICATIONS

- Board-to-board power connections
- DC-DC converters
- UPS
- Power supplies

Flexible Modular Design

To make easy work of power distribution design, CROWN EDGE is available in modules of 2 and 3 contact segments, each of which may have power or signal contacts or a combination of both in a single module. Up to 8 modules can be placed end to end, with optional mounting ears available for added stability. Custom molded configurations are possible on high-volume projects.

High Current Power Interface

CROWN EDGE power contacts are rated at 25A each using 5 oz. copper traces. See Current Ratings chart for details. Bus multiple power positions — or even multiple connectors — together to achieve the desired current rating. For even higher levels, CROWN EDGE can be mounted onto a bus bar, and even mate directly with a bus bar tab.

High Performance Power Contacts

CROWN EDGE uses Elcon's proven Crown Contact, a beryllium copper spring that provides more contact points to deliver low voltage drop and minimal heat generation. Optimum interface to the PC board is achieved through five eye of the needle press-fit tails.

Versatile Power Arrangements

Opposing contacts are isolated, so power connections at different voltage levels can be on one side of the board, with ground or power return on the other side.

Safety Regulation Compliance

CROWN EDGE has been evaluated by Underwriters Laboratories and has been found to comply with the requirements of U.S. standard UL1997 and Canadian standard C22.2 No. 182.3-M1987. CROWN EDGE also has TÜV certification.

c UL us
File No. E102484

TÜV PRODUCT SERVICE Bauart geprüft
Certificate No. B 99 12 18949 026

LEADERS IN CURRENT THINKING

CE-000331LTUS-3000

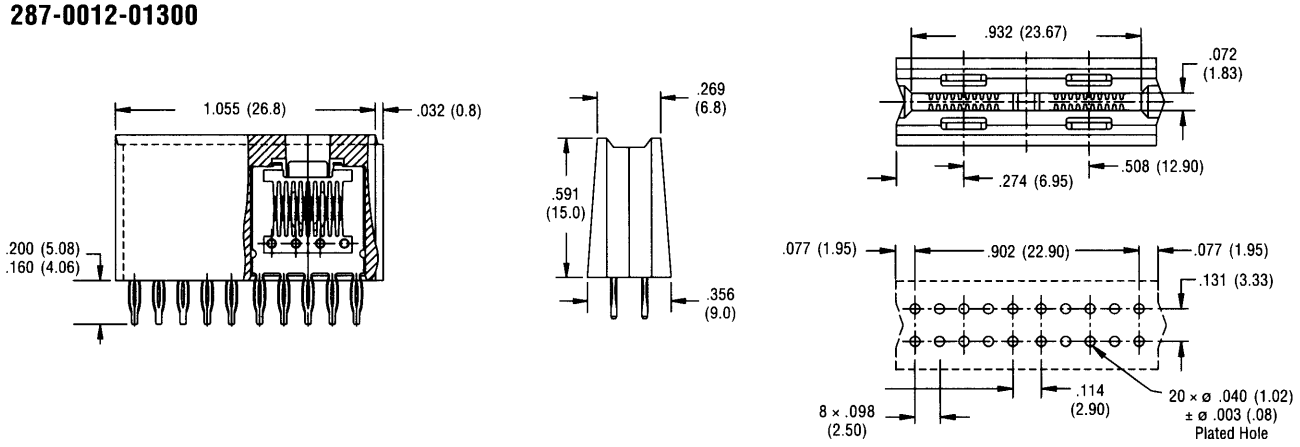
External appearance, dimensions and specifications subject to change without notice.

■ GENERAL DIMENSIONS AND PART NUMBERS

2 SEGMENT MODULES

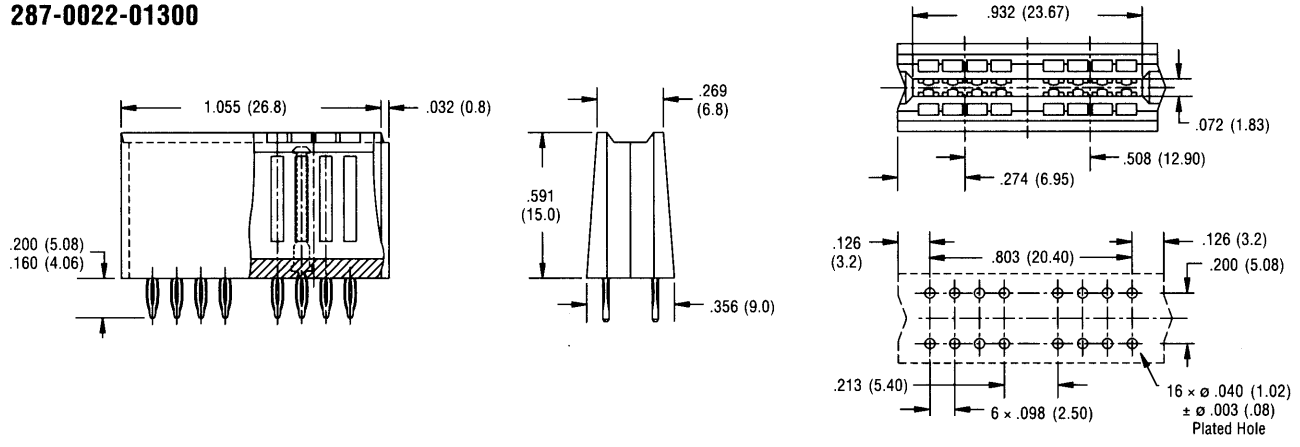
Power contacts × 4

P/N: 287-0012-01300



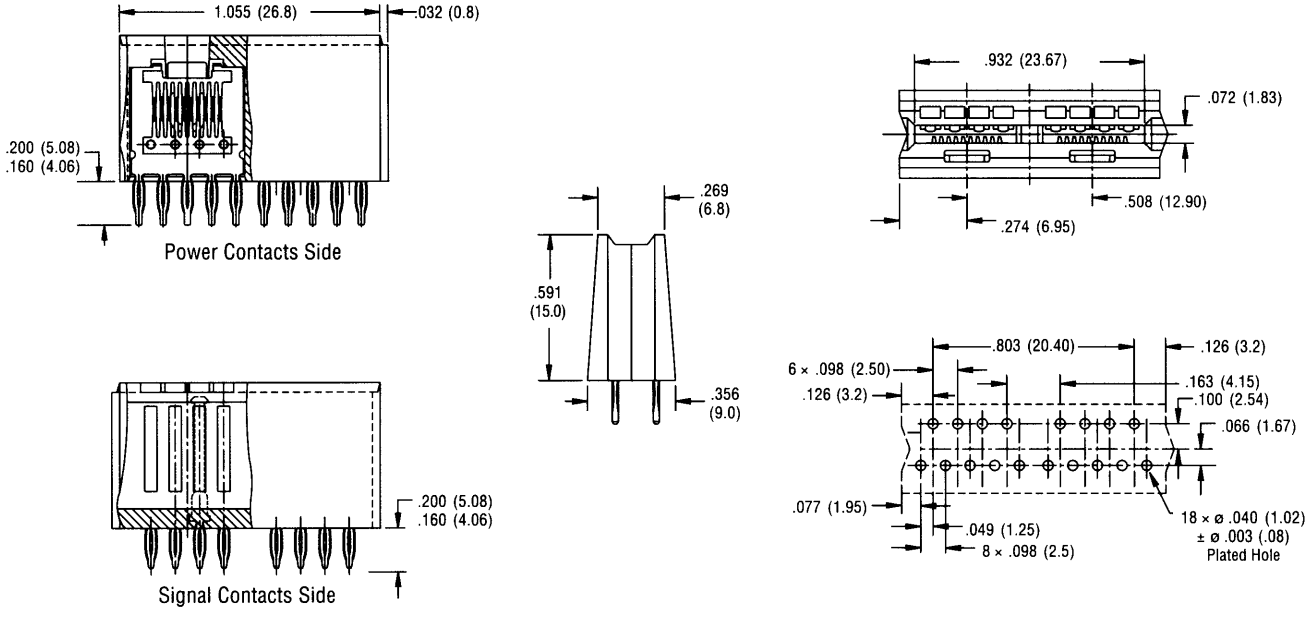
Signal contacts × 16

P/N: 287-0022-01300



2 power + 8 signal contacts

P/N: 285-0012-01300

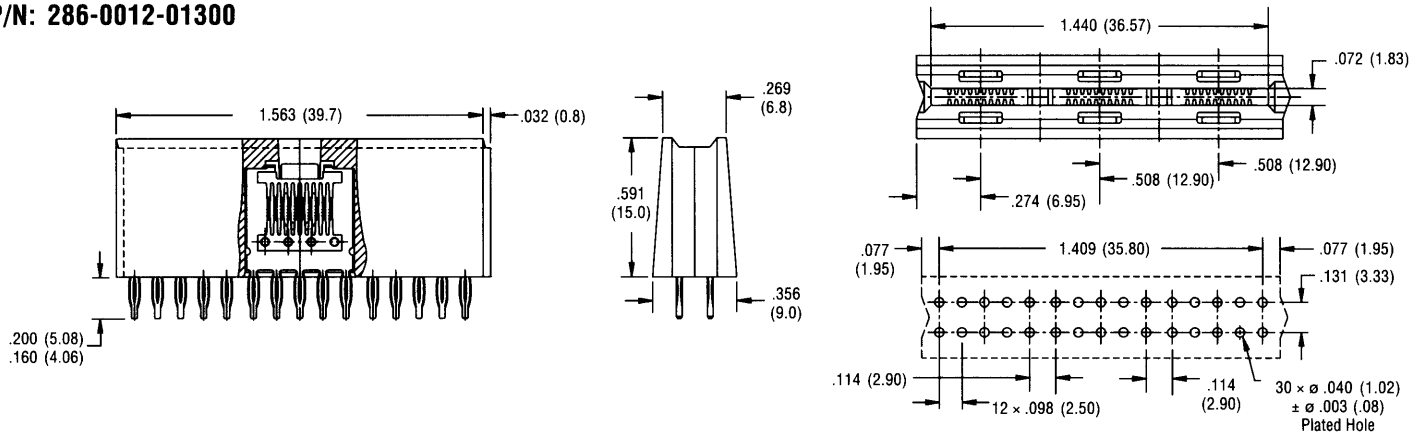


Units: Inches (mm)

3 SEGMENT MODULES

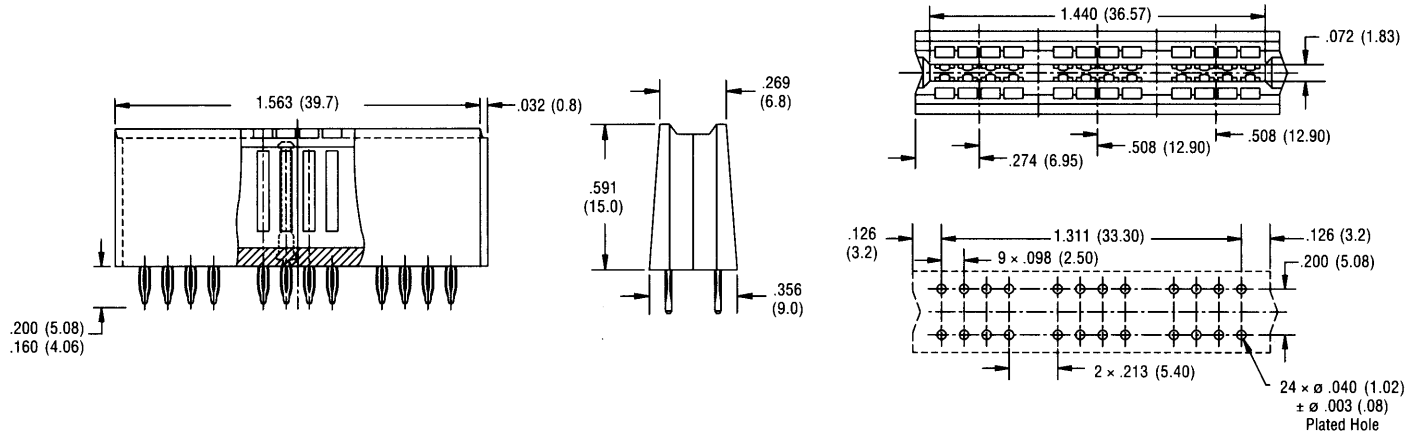
Power contacts × 6

P/N: 286-0012-01300



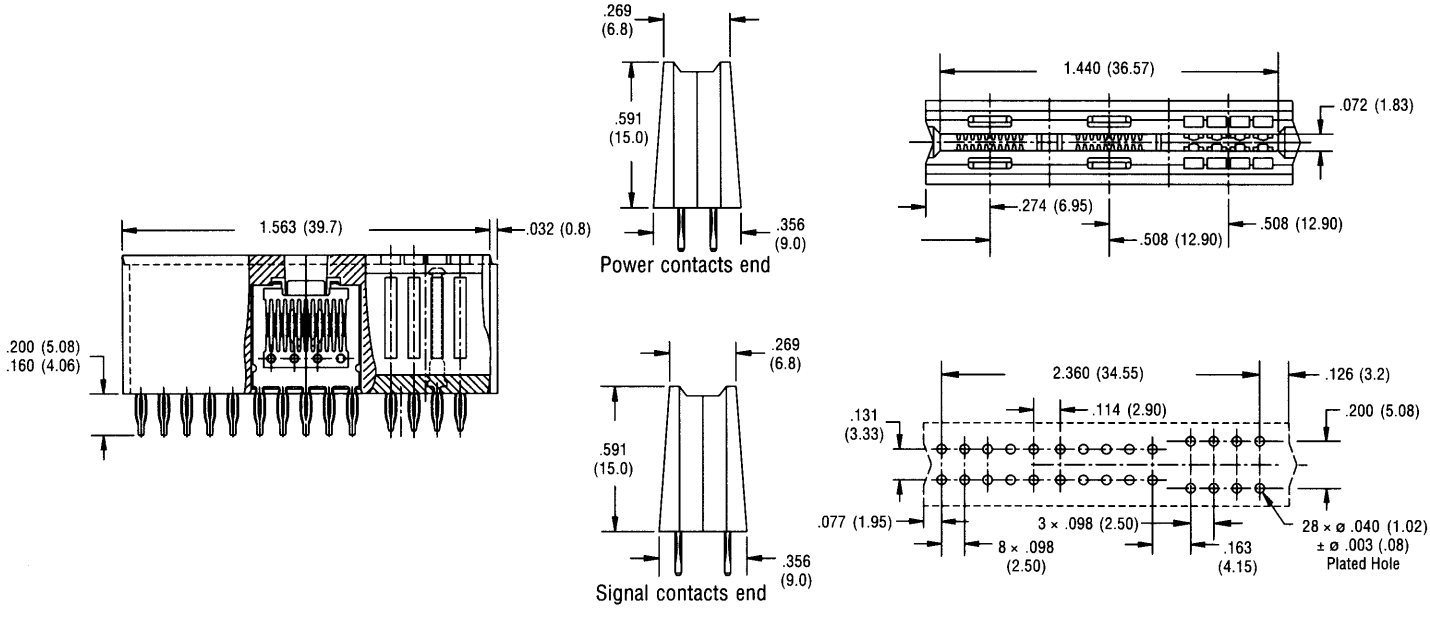
Signal contacts × 24

P/N: 286-0022-01300



4 power + 8 signal contacts

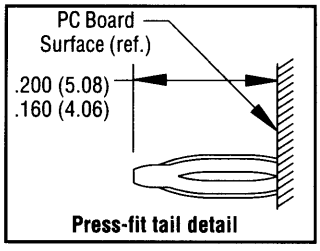
P/N: 284-0022-01300



■ CONNECTOR MOUNTING

Termination Options

CROWN EDGE uses truly compliant eye of the needle press-fit tails designed for boards 0.093" thick and above. Consult Elcon for solder termination availability.



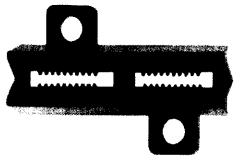
Tooling for compliant press-fit assemblies

Pressing fixtures are recommended for compliant press-fit assemblies. Contact Elcon for fixtures or a detailed tool drawing.

Optional Mounting Ear

A mounting ear option is available for added stability. Although module combinations and design requirements may vary from application to application, using modules with mounting ears on both ends of multiple unit assemblies improves mounting stability and mating integrity. Mounting ears accept 4-40 or M3 screws, user supplied. Consult Elcon for part numbers.

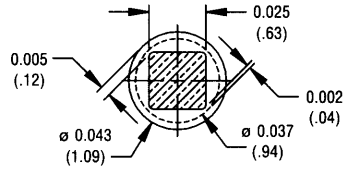
Two-segment module with mounting ears



Three-segment module with mounting ears

Suggested printed circuit hole for power contact

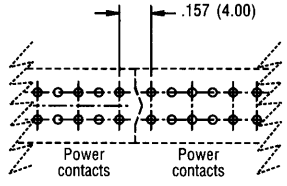
Finished Hole: Ø.040 ± .003 (Ø1.02 ± .08)
Drilled Hole: Ø.0453 ± .0005 (Ø1.151 ± .013)
Copper Plate: .0010 (.025) min. (per surface)
Tin Plate: .0003 (.008) min. (per surface)



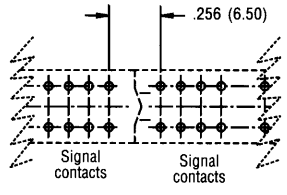
Spacing Between Modules

The spacing between plated thru holes when you use end-to-end mounting varies depending on the module combination you choose. Spacing for the three possible combinations is shown below.

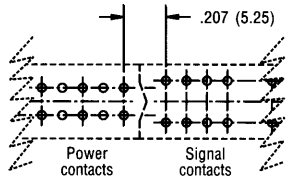
Power-to-power



Signal-to-signal



Power-to-signal

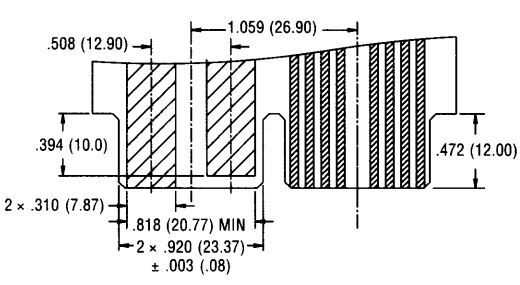


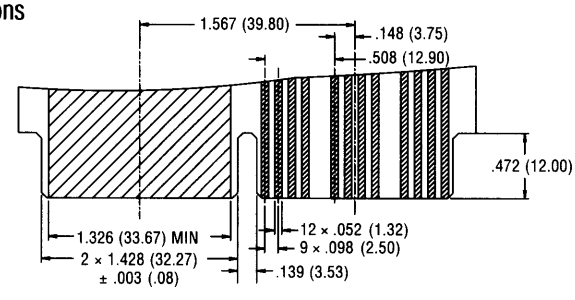
■ MATING PC CARD EDGE SAMPLES

The drawings below show two PC card edge samples with signal and power lines designed to mate with 2 and 3 segment CROWN EDGE modules.

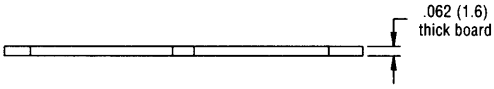
See DESIGN NOTES on back page for details on mating PC card edge requirements.

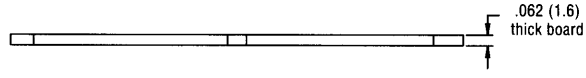
Card edge dimensions





Mating board thickness





■ PRODUCT SPECIFICATIONS

MATERIALS		
Insulators		PPA, UL 94-V-0 flammability rated, color black
Power contact holder		Phosphor bronze alloy per ASTM-B-103, selectively plated with bright tin/lead per MIL-T-10727, Type 1 (100μin minimum) on terminations, over nickel per QQ-N-290 Class 2 (40μin minimum)
Signal contacts		Phosphor bronze alloy per ASTM-B-103, selectively plated with gold per MIL-G-45204, Type II, Grade C, Class 0 (30μin minimum) and bright tin/lead per MIL-T-10727, Type 1 (100μin minimum) on terminations, all over nickel per QQ-N-290, Class 2 (50μin minimum)
Crown Band		Beryllium copper alloy per ASTM-B-194, selectively plated with gold per MIL-G-45204, Type II, Grade C, Class 0 (30μin minimum), over nickel per QQ-N-290, Class 2 (50μin minimum)
ELECTRICAL		
Current ratings	**Power contact**	25A (see graphs below)
	Signal contact	3A per contact
Insulation resistance		5,000MΩ minimum at 500VDC for 2 minutes, per MIL-STD 1344, Method 3003
Dielectric strength		1,500VDC for 1 minute, per MIL-STD 1344, Method 3001
MECHANICAL		
Mating PCB thickness		.062" (1.6 mm) ± .006" (0.15 mm)
Insertion Forces	**2 segment power module**	5.0 lbf typical using .062" (1.6 mm) thick mating board with 5 oz. of copper
	3 segment power module	6.0 lbf typical using .062" (1.6 mm) thick mating board with 5 oz. of copper
Extraction Forces	**2 segment power module**	3.0 lbf typical using .062" (1.6 mm) thick mating board with 5 oz. of copper
	3 segment power module	5.0 lbf typical using .062" (1.6 mm) thick mating board with 5 oz. of copper
Mounting (units with optional mounting ears)		Screw size 4-40 (M3)
Tooling		Press fixture is recommended for compliant press fit assemblies. Consult Elcon for details.

Note: Specifications subject to change without notice.

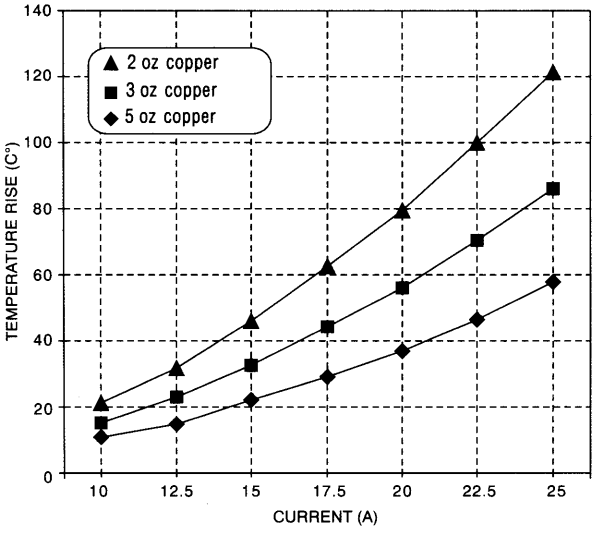
■ CURRENT RATINGS

The two graphs below show the electrical performance of CROWN EDGE power modules when mounted on boards of different copper thicknesses.

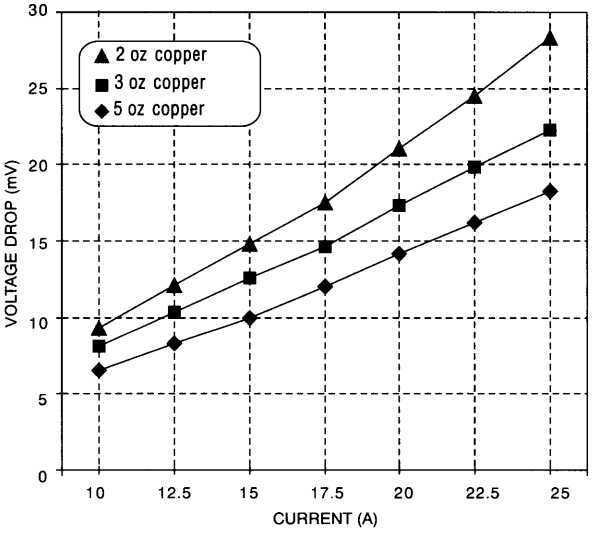
Test Conditions

- One two-segment and one three-segment module mounted on and mated with 2 oz., 3 oz. and 5 oz. PC boards.
- Current run across 10 power contacts connected in series.
- Temperature rise and millivolt drop measured in still air conditions.

Current vs. Temperature Rise



Current vs. Voltage Drop



■ DESIGN NOTES

Mating PCB requirements

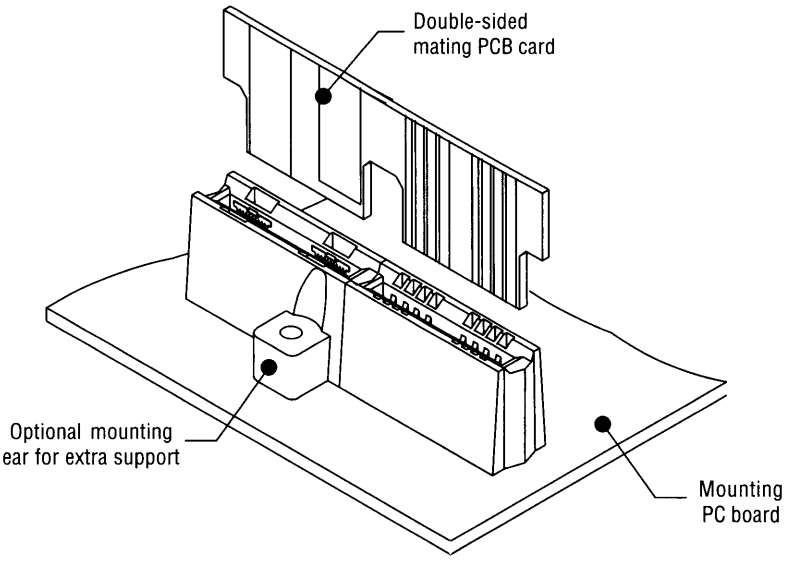
Mating PCB edge fingers should be gold plated, have .050" (1.3 mm) side margins, and be of suitable copper weight for power applications. (See CURRENT RATINGS graphs).

Sequenced mating

Sequenced mating can be achieved by designing one or more setback traces on the mating card edge, or by notching the edge of the card.

End-to-end mounting

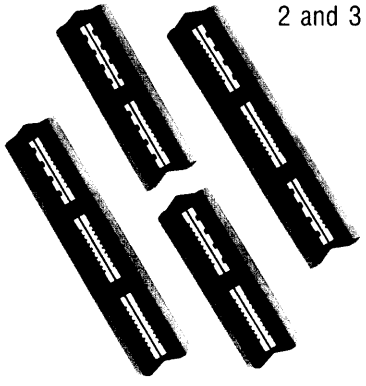
Modules can be placed end-to-end for connectors up to 8" (203.20 mm) long, with a mounting ear option available for added stability. Mounting ears accept 4-40 or M3 screws, user supplied.



■ CUSTOM SOLUTIONS

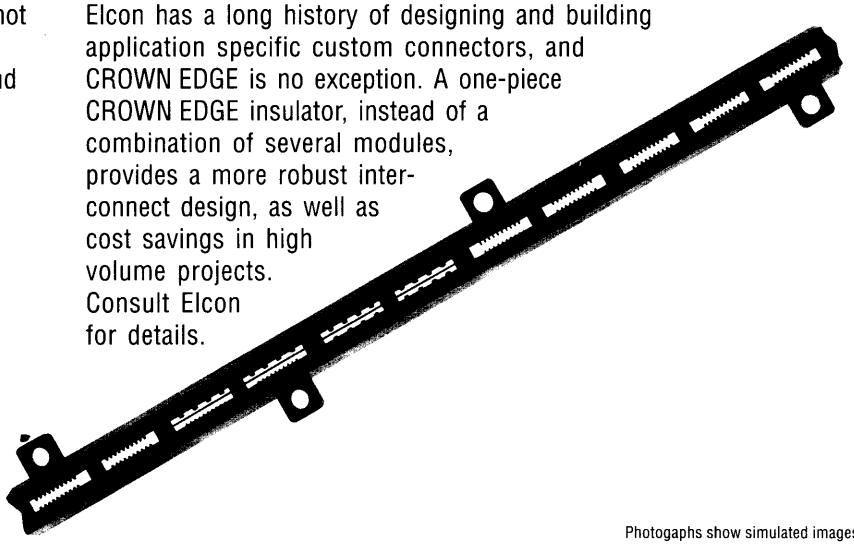
Non-standard Layouts

In case the standard CROWN EDGE layouts do not meet your design requirements, Elcon has the capability to mold any combination of power and signal contact layouts in 2 and 3 segment modules.



Application-specific Custom Designs

Elcon has a long history of designing and building application specific custom connectors, and CROWN EDGE is no exception. A one-piece CROWN EDGE insulator, instead of a combination of several modules, provides a more robust interconnect design, as well as cost savings in high volume projects. Consult Elcon for details.



Photogaphs show simulated images.

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