Introduction

Designed in accordance with EIA standard RS-310, Vector subracks and modules offer versatility within a 19" rackmount format. All racks are adjustable in both height and depth, offering standard product solutions for standard and custom requirements.

All Subrack sizes are compatible with Vector prototyping boards (see Vectorbord section), and can accommodate other sizes as well. Several card guide types (metal or plastic, snap-in, rivet, or screw-down) are available.

Cages

VectorPak® Subrack and Module Subrack Types by Part Number Stem:

CCK - Card Cage frame kit. Kits with no card guides use 'F' in number (e.g., CCK13F/90). Other kits have 21 pair of guides included: 'S'= plastic snap-in type e.g., CCK13S/90; 'M' or 'P'= metal or plastic, fastened with hardware. Guide spacing is .25".

CCA - Same as CCK version, but all are *assembled with guides*.

CMA - Assembled **Module Subrack** for EFP modules. Modules available separately.

CCM - Assembled rack for **Card Mount Modules** (CM type). Modules available separately.

Subrack Kits (CCK)

Assembled Module Subracks (CMA)

Part No.	Width	Height	Depth	Max Card Size
CCK13F,S,M/90	19"	3U	9'	4.5" x 6.5"
CCK14F,S/90	19"	3U	12"	4.5" x 9.6"
CCK15F,S/90	19"	4U	12"	6.25" x 8.0"
CCK17F,S/90	19"	5U	12"	8.75" x 12.0"
CCK18F,S,M/90	19"	6U	15.75"	9.75" x 13.5"
CCK100S/90	19"	7U	9'	11.5 x 7.0"

Part No.	Width	Height	Depth	# of Modules	Max Card Size
CMA13-16/90	19"	3U	9"	10	4.5" x 6.5"
CMA13-20/90	19"	3U	9"	8	4.5" x 6.5"
CMA13-30/90	19"	3U	9"	5	4.5" x 6.5"
CMA14-16/90	19"	3U	12"	10	4.5" x 9.6"
CMA14-20/90	19"	3U	12"	8	4.5" x 9.6"
CMA14-30/90	19"	3U	12"	5	4.5" x 9.6"

Assembled Subracks with Card Guides (CCA)

Assembled Card Mount Subracks (CCM)

| Part No.	Width	Height	Depth	Max Card Size
CCA13C/90	19"	3U	9'	4.5" x 6.5"
CCA13S/90	19"	3U	9'	4.5" x 6.5"
CCA13M/90	19"	3U	9'	4.5" x 6.5"
CCA14S/90	19"	3U	9'	4.5" x 9.6"
CCA14M/90	19"	3U	9'	4.5" x 9.6"
CCA14P/90	19"	3U	12"	4.5" x 9.6"
CCA15S/90	19"	4U	12"	6.25" x 8.0"
CCA17S/90	19"	5U	12"	8.75" x 12.0"
CCA18S/90	19"	6U	15.75"	9.75" x 13.5"

Part No.	Width	Height	Depth	Max Card Size
CCM13S/90	19"	3U	9"	4.5" x 6.5"
CCM14S/90	19"	3U	12"	4.5" x 6.5"
CCM15S/90	19"	3U	12"	6.25" x 8.0"

Subracks

Assembled Subracks with Card Guides
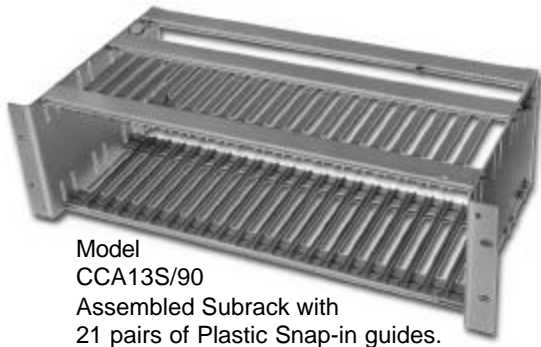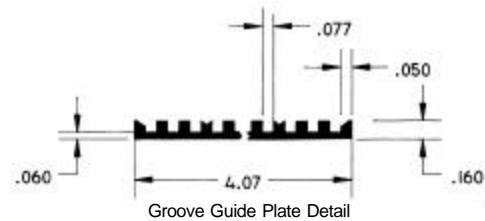
Model
CCA13S/90
Assembled Subrack with
21 pairs of Plastic Snap-in guides.

- Models available with snap-in guides or metal or plastic screw down type
- Guide positions at .25" increments
- Adjustable slots, horizontal or vertical
- Construction: ,080" thick aluminum
- Sidewall slots provide adjustability to 1"
- For 4.5" x 6.5" cards; or 4.5" x 9.6" cards
- Adjustable rear struts for mounting connectors
(For card guide details see page 40; Ordering Table see page 37)

Model
CCA13C/90
Assembled Subrack
with continuous guide plate

- Continuous groove guide plate
- Allows maximum flexibility in card placement

Groove Guide Plate Detail

Assembled Cardmount Subracks
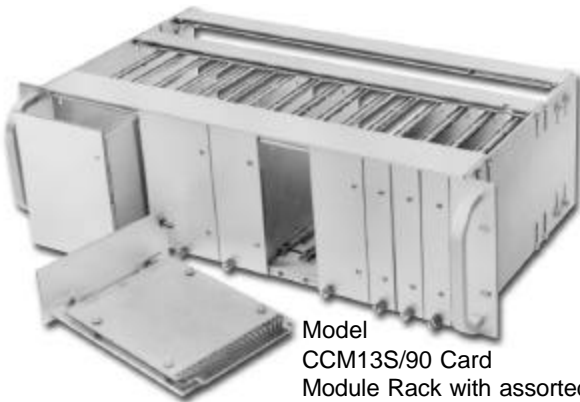
Model
CCM13S/90 Card
Module Rack with assorted
cardmount modules

- Accepts CM45A65 Card Mount Modules
- Card guide positions are variable at .25" increments
- Assembled module rack - plastic snap-in install on 1" centers
- Different width modules may be inserted interchangeable without guide changes
- Card mount modules (CM Series) with 1" to 4" widths
- For 3U and 4U applications
- Adjustable rear struts for connection of backplanes (struts available separately)
- .062" thick aluminum plates are inserted into guide; PC Card is attached firmly to plate
- Front panels on card mount may be removed for custom punching, plating and printing
- Modules may be secured by thumb screws (SC10-3A, 10-32 included)

(Ordering Table see page 37)
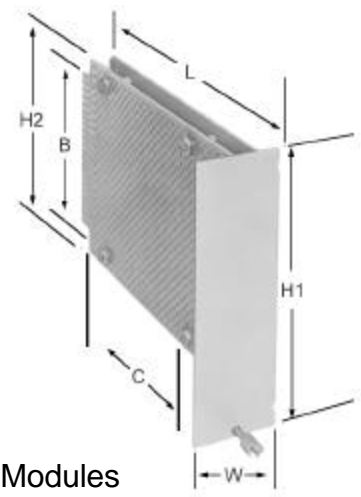
Card Mount Modules

Part No.	Height		Width	Length			Module	Card
	H1	H2	W	L	B	C	Rack	Guide
CM45A65-1	5.25"	4.5"	1.0"	6.57"	3.8"	3.6"	CCM13S	CCM13S
CM45B95-1	5.25"	4.5"	1.0"	9.57"	3.8"	6.6"	CCM14S	CCM14S
CM45A65-2	5.25"	4.5"	2.0"	6.57"	3.8"	3.6"	CCM13S	CCM13S
CM45B95-2	5.25"	4.5"	2.0"	9.57"	3.8"	6.6"	CCM14S	CCM14S
CM62F95-2	7.0"	6.25"	2.0"	9.57"	5.5"	6.6"	CCM15S	CCM15S
CM45A65-4	5.25"	4.5"	4.0"	6.57"	3.8"	3.6"	CCM13S	CCM13S
CM45B95-4	5.25"	4.5"	4.0"	9.57"	3.8"	6.6"	CCM14S	CCM14S

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Assembled Module Subracks

CMA13-20/90
Module Subrack shown with eight 2"
wide EFP Modules (sold separately)

- 1.6", 2.0" and 3.0" evenly spaced modules are accepted
- Side Panels -double screw attachment to wide TSW \ (1.75") metal strut
- Rear Struts-adjustable in width and height-BR16-1 bracket
- Special aluminum extruded case guides and spacers provide secure mounting for modules
- Standard 19" width. Other widths available by special order.
- Filler panels available where mixing widths creates gaps
- Aluminum construction
- Paint or color anodize options available

CMA Module Racks

These cages provide attractive, sturdy, and mechanically excellent housing to enclose electronic assemblies.

These units have the benefits and features of custom enclosures without the expense.

EFP modules feature aluminum extruded sides to accept PC cards. Extended front panels on modules allow thumb screw locking of module to subrack for easy insertion and extraction. The extended front panel also provides an attractive appearance.

Side panels fasten to sturdy Vector TSW model (1.75" wide) Struts with two screws. Subrack models accept widths of 1.6", 2.0", and 3.0" EFP modules; 4.5" module optional. Rear struts are adjustable in width and height.

(Ordering Table see page 37)
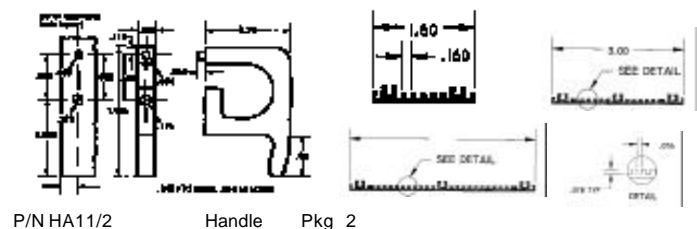
Subracks
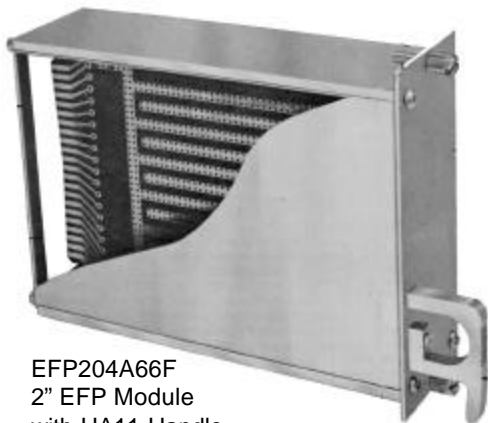
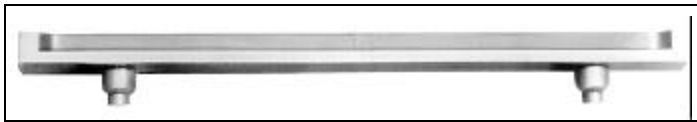# EFP Modules

EFP204A66F
2" EFP Module
with HA11 Handle

- Extended front panels provide thumb screw mounting & flush fit from module to module & with strut line.
- Modules provide shielding; H.F. shielding optional
- Front panels may be customized -cutouts, printing & color.
- All covers have locking detent; slides out of groove when released
- Supplied in Kit form
- Modules with 6.5" depth accept 4.5" x 6.5" cards
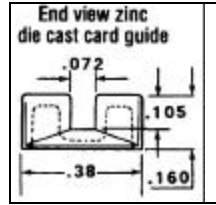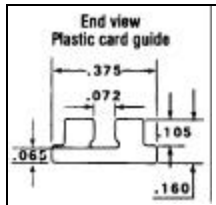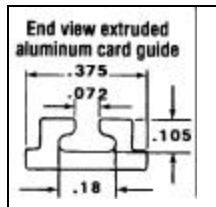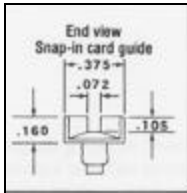- Modules with 9.7" depth accept 4.5" x 9.6" cards
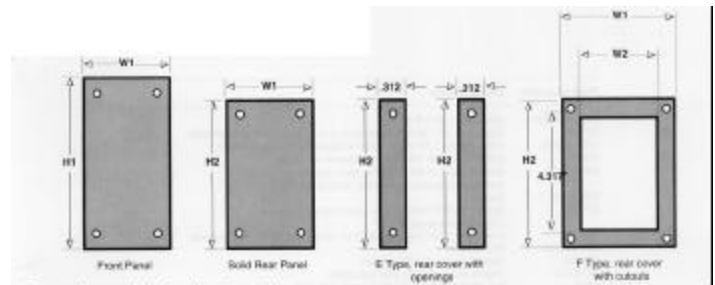
Part No.	Kit Type E	Kit Type F	L	W1	W2	H1	H2	Front Panel#	Full Rear Panel Piece Parts		
									Rear Cover	E Slats	F Cutouts
EFP164A66	EFP164A66E	EFP164A66F	6.5"	1.65"	1.31"	5.22"	4.62	FP16-52	BP13-4	BP3-4-11	BP13-4F
EFP164A97	N/A	EFP164A97F	9.6"	1.65"	1.31"	5.22"	4.62"	FP16-52	BP13-4	BP3-4-11	BP13-4F
EFP204A66	EFP204A66E	EFP204A66F	6.5"	2.05"	1.71"	5.22"	4.62"	FP2A52	BP17-4	BP3-4-11	BP17-4F
EFP204A97	EFP204A97E	EFP204A97F	9.6"	2.05"	1.71"	5.22"	4.62"	FP2A52	BP17-4	BP3-4-11	BP17-4F
EFP304A66	FP304A66E	EFP304A66F	6.5"	3.05"	2.71"	5.22"	4.62"	FP3A52	BP27-4	BP3-4-11	BP27-4F
EFP304A97	N/A	EFP304A97F	9.6"	3.05"	2.71"	5.22"	4.62"	FP3A52	BP27-4	BP3-4-11	BP27-4F
EFP454A66	EFP454A66E	EFP454A66F	6.5"	4.55"	4.21"	5.22"	4.62"	FP3A52	BP27-4	BP3-4-11	BP27-4F
EFP454A97	N/A	EFP454A97F	9.6"	4.55"	4.21"	5.22"	4.62"	FP45A52	BP42-4	BP3-4-11	BP42-4F

P/N HA11/2   Handle   Pkg 2

11115 Vanowen St., North Hollywood, CA 91605 Phone (818) 985-8208
Toll-Free (800) 423-5659
Web site: http://www.vectorelect.com

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Card Guides

Tapered slot, snap-in card guides provide easy installation/removal

High quality card guides feature tapered slots for easy insertion. Snap-in nylon models provide easy installation and removal without tools, and can be positioned at 0.25" increments when used with Vector-Pak T-struts (TS169-6/90). Screw-mounted models (installation hardware included) are available in metal or plastic and provide variable positioning along entire length of strut. Holes for mounting guides to struts are based on center-to-center multiples of 0.75". All materials are flame retardant.
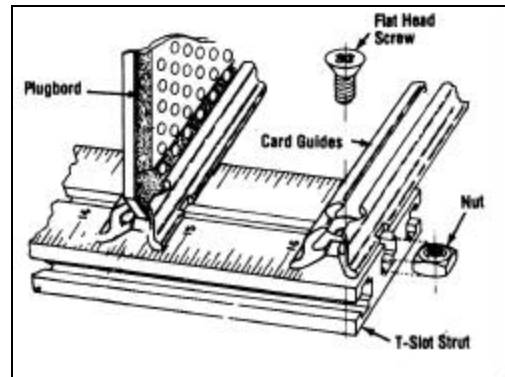

Metal or plastic screw down card guides attach with SC4-27/25 flat head screw and NT4-7PA square nut

Part No.	Type	Length	Centers	Card Length	Application
CG2-45P	Plastic, Screw	2.89"	2.25"	4.50"	
CG2-45S	Nylon, Snap-in	3.17"	2.25"	4.50"	Subrack series 12, 13, 14, 17, 18 & 100 and Vector P series sidewalls
CG2-50P	Plastic, Screw	4.39"	3.75"	5.00"	
CG2-65M	Metal, Screw	5.42"	4.50"	6.50"	
CG2-65P	Plastic, Screw	5.42"	4.50"	6.50"	
CG2-65S	Nylon, Snap-in	5.42"	4.50"	6.50"	
CG2-80P	Plastic, Screw	6.64"	6.00"	8.00"	Subrack series 14, 15, 17, 18 and 100 and Vector P series sidewalls ending in 119 or 156
CG2-80S	Plastic, Screw	6.93"	7.50"	8.00"	
CG2-95M	Plastic, Screw	8.14"	7.50"	9.50"	
CG2-95P	Plastic, Screw	8.14"	7.50"	9.50"	
CG2-95S	Nylon, Snap-in	8.43"	7.50"	9.50"	

Packages of 12 ea. Screw down types include installation hardware.

Snap-in Guide and TS169-6/90 Strut
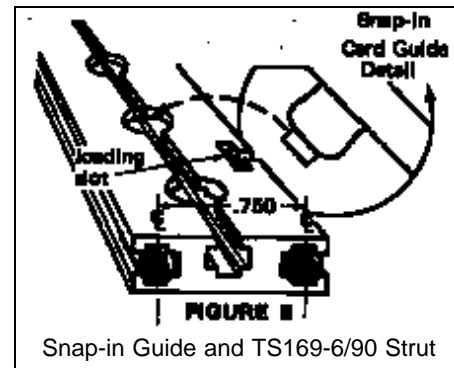
Free Standing Connector Mounted Card Guides

Secure connection, rugged support of 0.062" thick, free standing circuit boards. For applications in which space is at a premium. Several sizes and styles available. Aluminum alloy construction. Mounting hardware included (HD55 Hardware Kit)
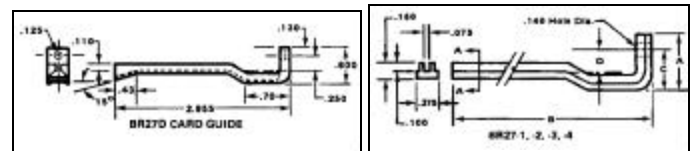
Part No.	Use With Connector	A	B	C	D	For Use With
BR27D	R644	.60"	2.96"	.47"	.25"	4.5" wide Plugbords with centered contacts, such as Vector 3677, 3682 and 3662 series

Typical BR27 mounting

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T-Struts

Vector T-Struts can be used for custom assemblies or to fit existing cage assemblies. Available with either three or four nut slots. As an alternative, mounting brackets (BR16A, available separately) may be used to attach struts to cages. Strut material is aluminum with clear anodized finish. Struts are attached to side panels with 10-32 screws (Part No. HD90).

T-Struts
Hardware Kit - HD34

HD34 is a complete connector mounting kit consisting of:
42, 4-40 screws (SC4-28)
42 nuts (NT4-2)
42 lockwashers

To mount connectors, simply slide nut into desired position and fasten with screws and lockwasher as illustrated. SC4-28 screws available in bulk quantities.

Figures showing T-Strut features - see table

NT4-7PA: Pkg 25 nuts in a plastic carrier
for rapid loading into TS series middle groove

BR16A Bracket Kit includes two each BR16-1 (right) and BR16-2 (left) brackets plus installation hardware. Bracket assemblies are normally used on rear strut, though front strut may use them as well. HD90 Self-tapping Screws (pkg. 12 not shown) may also be used to mount T-struts to sidewalls.

End Part No.	Length	Width	Method of Fastening	Fig.	Description
TS81	8.12"	1"	BR16 Brackets or HD90 Screws	1	1" wide T-strut, Pk. of 1 each
TS81-5/90	8.12"	1"	BR16 Brackets or HD90 Screws	4	1" wide T-strut, Pk. of 1 each
TS169	16.85"	1"	BR16 Brackets or HD90 Screws	1	1" wide T-strut, Pk. of 1 each
TS169A	16.85"	1"	BR16 Brackets or HD90 Screws	2	1" wide T-strut, Pk. of 1 each
TSW169	16.85"	1.75"	HD90 Screws	5	1.75" wide T-strut, Pk. of 1 each
TS169-6/90	16.85"	1"	HD90 Screws	4	1" wide T-strut, Pk. of 1 each, dimpled for Snap-in guide insertion
TS209	20.85"	1"	BR16 Brackets or HD90 Screws	1	1" wide T-strut, Pk. of 1 each
TS300	30.00"	1"	Raw Stock	1	1" wide T-strut, Pk. of 1 each
TS300A	30.00"	1"	Raw Stock	2	1" wide T-strut, Pk. of 1 each
TSW300	30.00"	1.75"	Raw Stock	5	1.75" wide T-strut, Pk. of 1 each
TS600	60.00"	1.75"	Raw Stock/pkg.	3	1.75" wide T-strut, Pk. of 4 pcs.

Subracks

Series 710 VME for 6U Horizontal Cards

Desktop/Rackmount Enclosure

Model 710: Two piece (Subrack, Enclosure)
5 Slot VME Enclosure

Features:
- Separable system subrack for rack mounting
- Subrack slides into table top enclosure
- Larger systems for vertical card entry - 12 to 21 slot backplanes
- Rear entry card accepted; 80 or 100mm
- Embedded power supply up to 750 watts

Air Flow

Rear Entry
Modules Option

Rear View
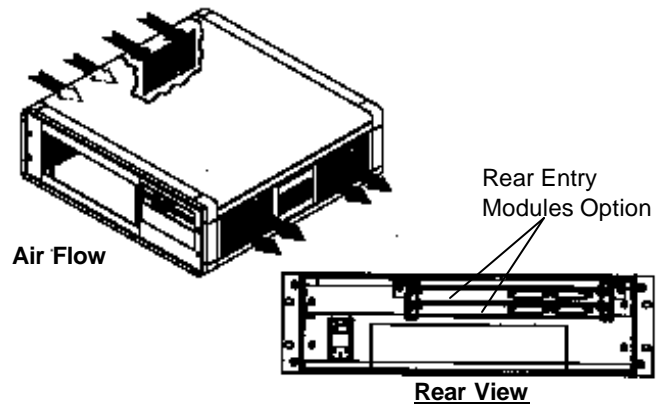
Part No.	Case Used	Backplane	PSU
710-616-052-03-00-00	SE1322	5 Slot J1/J2	300 Watt
720-616-122-07-00-00	SE1722	12 Slot J1/J2 Monolithic	750 Watt

3U Cages
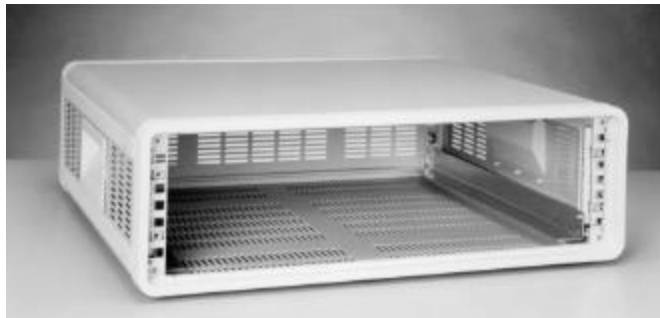
SE1322B - 3U high, enclosure assembly alone.
7U enclosure available (SE1722)

- Painted with Bezel accent color for choice of colors
- Accepts standard 3U subracks with EIA brackets
- Sturdy steel structure
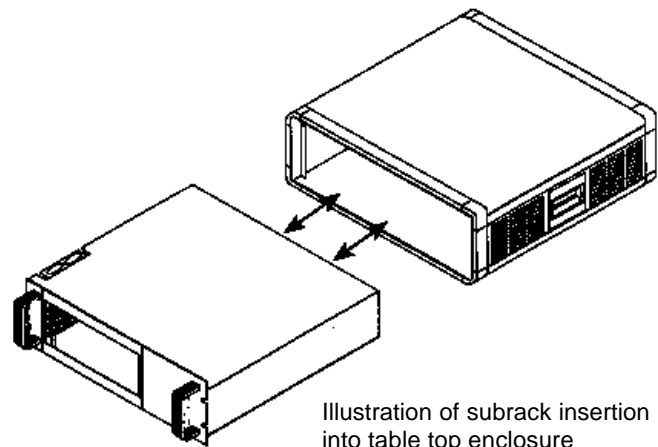- Plastic decorative Bezel

Illustration of subrack insertion
into table top enclosure

Part No.	Height		Width		Depth		Color	Subrack
	Inside Dim.	Outside Dim.	Inside Dim.	Outside Dim.	Inside Dim.	Outside Dim.		
SE1322B	2.5"	6.4"	17.8"	20.2"	17.5"	19.1"	Pearl White	CC Series 160-3U thru 340-3U
SE1722B	12.2"	13.4"	17.8"	20.2"	17.5"	19.1"	Pearl White	CC Series 160-6U thru 340-6U

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Aluminum Instrument Cases

Versatile Multi-Mod™ cases are ideal for small case packaging of testers, controllers and other instruments. Brushed aluminum construction provides excellent RF attenuation and an attractive "finished" appearance. Kits include frame, top and bottom covers and hardware. Extruded two-piece frame assembles quickly with self-tapping screws. Standard 0.062" cards slide into grooves in Frame-Loc Rails.

Model: W45-86-46B

Part No.	Width	Length	Height	Circuit Card Size Range
W45-10-66B	4.5"	10.00"	6.64"	9.88" x 6.50"
W45-10-46B	4.5"	10.00"	4.61"	9.88" x4.50"
W45-86-46B	4.5"	8.61"	4.61"	8.50" x 4.50"
W45-66-46B	4.5"	6.61"	4.61"	6.50" x 4.50"
W30-10-66B	3.0"	10.00"	6.61"	9.88" x 6.50"
W30-86-46B	3.0"	8.61"	4.61"	8.50" x 4.50"
W30-66-46B	3.0"	6.61"	4.61"	6.50" x 4.50"
W20-66-46B	2.0"	6.61"	6.61"	6.50" x 4.50"
W20-46-31B	2.0"	4.61"	3.10"	4.50" x 2.98"
W16-31-31B	1.6"	3.10"	3.10"	2.98" x2.98"

Example of sturdy instrument case
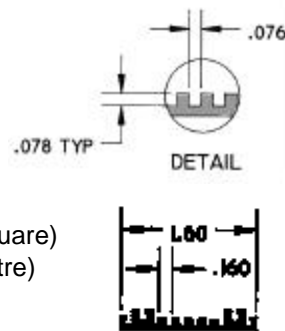(Headers & switches not installed)

Frame-Loc Rails™ - for Cases or P.C. Board Racks & Carriers

Ideal for applications requiring quick, versatile packaging. Frame-Loc Rails™ can be cut or bent to form enclosures of virtually any size. Aluminum construction with 0.062" grooves accommodate most Vectorbord printed circuit boards. Four available widths. Standard length is 41", shorter lengths can be ordered using table below. Standard finish is clear anodize. Attach rails at 90° with BR64A corner brackets.
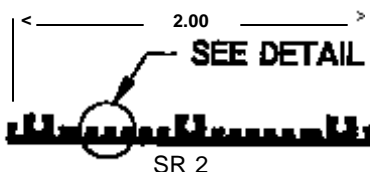
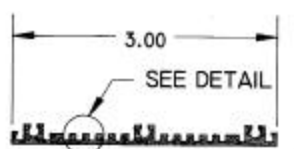### Ordering Table

SR 16 - 2 0 . 0 0 - S

Width
16 = 1.6"
2 = 2.0"
3 = 3.0"
45 = 4.5"

Length (inches)

S = 90º (Square)
M = 45º (Mitre)

.076
.078 TYP
DETAIL

.160
SR 16

2.00
SEE DETAIL
SR 2

3.00
SEE DETAIL
SR 3

4.50
SEE DETAIL
SR 45